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THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

IN TWO VOLUMES ANNUALLY.

VOL. CCV.

VOL. II. FOR 1923.

ONE HUNDRED AND FIRST YEAR.

EDITED BY

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AND

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LONDON
PRINTED BY HAZELL WATSON & VINEY LD., 52, LONG ACRE, W.C. 2, AND PUBLISHED BY THE PROPRIETORS,
AT THE OFFICES OF "THE LANCET," No. 423, STRAND, AND No. 1, BEDFORD STREET, STRAND.

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				915–962	,,	27th	5226	1385–1428	,,	29th	5235

PRINTED BY HAZELL WATSON & VINEY LD., 52, Long Acre, W.C. 2, and PUBLISHED by the PROPRIETORS, WAKLEY & SON (1912), LTD., at No. 423, Strand, and No. 1, Bedford-street, Strand, in the Parish of St. Martin-in-the-Fields, in the County of London

610.5

THE LANCET, Oct. 6th, 1923.

610.5
L.A
1923
Vault (Rare book)

THE CENTENARY OF THE LANCET

OCTOBER 5th, 1823—OCTOBER 5th, 1923.

THE FOUNDING OF THE LANCET.

THE first number of THE LANCET was issued on Oct. 5th, 1823, which was a Sunday, and the events of its first 20 years all centre round the actions of its founder. The founder of THE LANCET was Thomas Wakley, the youngest of the eight sons of a Devonshire farmer, and he was only 28 years of age when the first number of the journal appeared. The idea of producing a weekly paper was the outcome of a short but exciting personal experience as a practitioner and a chance acquaintance with William Cobbett. Cobbett was at that time making a series of political tours, traversing England on horseback, and publishing in his paper, the *Political Register*, his shrewd and eloquent criticisms of rural conditions. He had passed through an anxious and not wholly creditable period of his life, and he found himself winning a great position in letters by his championship of the cause of the weak generally, and by the frank advice which he was giving in his works of domestic and educational utility. To him Wakley confided his views upon the anxious position occupied by the rank and file of the medical profession at that date, and from him received the natural advice that he should get the arguments for reform in front of the reading public at the earliest opportunity.

MEDICAL TRAINING IN 1823.

Wakley's first-hand experience of the medical profession before he attempted to found a newspaper may be summed up as follows: He went to a London hospital and noted there conditions directly at variance with his ideas of justice. He found that, although the student might play his part in the educational scheme laid down by hospital authorities—namely, to pay fees and attend classes—the authorities at the hospitals were not prepared to play their part. The schools were insufficient in number, compelling the student to attend overcrowded private classes. The lectures at the regular schools were not delivered by the eminent people who received the fees, but by their demonstrators; the one great practical help to the acquisition of a sound knowledge of pathology, namely, presence at post-mortem examinations, was only secured by the clandestine feeing of porters in post-mortem rooms; the honorary staff, from whose lips the student was supposed to learn the science of healing, were capricious in their visits and were generally dumb upon the occasions when they appeared; the lists of operations were not published to the students at large, but only communicated to the favoured pupils of the staff, who knew what was going to be done by the great men and at what time. And how was the class of favoured pupils selected? Wakley found that the student could be relegated to a position in his profession, which was marked out from the beginning to be and to remain inferior, not in the least through want of personal merit, but entirely because he had not paid a fee to apprentice himself to a great man. Seeing that a popular operator, lecturer, teacher, or consultant adviser could ask and obtain high fees from his pupils, it followed that command of money at the beginning of a student's career might ensure success, while lack of money was condemnation to an inferior position. Wakley had no objection to being a general practitioner; on the contrary, he desired to be one. But having lived as a student for three years in the house of two hard-worked members of this class, sharing their labours and knowing their trials, and estimating the amount of good that they did and the amount of influence for good that they were able to exercise over the community, he recognised that these men were set on one side and looked down upon by their privileged brethren, who had themselves obtained their places in the medical hierarchy by purchase and not by merit. Wakley saw also that these fortunate ones, being in posts of office, took the emoluments and omitted to do the work. His sense of fairness revolted at these things, and none the less because he personally suffered from the abuses. The attitude towards hospital officials that he was soon to reveal, his readiness to find those superior beings wanting in skill, and his pertinacity in convicting them of unfairness and nepotism, were thus accounted for. As medical student, and as apprentice, Wakley had imbibed the belief that the doctor in general practice, like the student without financial backing, did not get justice, and that those who were wronging them were their leaders, who ought to have protected them.

A MYSTERIOUS OUTRAGE.

Immediately upon qualification as a Member of the Royal College of Surgeons of England, Wakley married and brought his wife to No. 5, Argyll-street, Regent-street, London, where, with his father-in-law's aid, he had acquired a practice; and it is interesting to know that the goodwill of the practice, situated in what was in 1820 a solid residential district, cost £400. Life was now running for him on an even keel. He had always the reforming spirit, but it seems quite likely that if this fortunate start had been smoothly continued his sense of grievance at the abuses in medical organisation would have abated and the regeneration of the medical practitioner would have awaited some other inspirer. But almost at once catastrophe fell upon him. In August of the same year in which he married a violent assault was made upon him by unknown ruffians, his house was gutted, and what property there was in it was destroyed or stolen.

The cause of the outrage was never exactly discovered, but a theory that the actions were due to revenge on the part of the followers of Thistlewood, a political desperado who had been executed recently, has considerable probability. It seems to have been widely rumoured that the masked man, stated to be a doctor, who beheaded Thistlewood, was Wakley. The Sheriff of London publicly contradicted the story, but the fact that such a contradiction was called for shows how substantial the rumour became. Wakley had to bring into court his claim against the company with which his goods were insured. This claim was settled, but not without considerable reluctance on the part of the company, who in the end paid the full amount under the terms of the policy and Wakley's costs, while the further expenses were defrayed by public subscription, the evidence having shown on which side right lay.

But though in this way Wakley's pecuniary loss was reduced to a small sum and his good repute before men was restored to him, the effects of the experience abided. He was paid in full, his name was cleared of the aspersions that had been showered upon it, while the public subscriptions to meet such of his costs as would otherwise have fallen upon himself constituted a public apology for the wrong that had been done him. But if his pecuniary loss was negligible and his character re-established, the effects of the circumstances of the past ten months remained and haunted him. They changed the tenour of his ways, forming the sharp stimulus that pricked him from the regular routine of the life of a general practitioner into a course of more free and individual assertion. He had been personally attacked, he had won, and a spirit of combat had been roused. During his time of trial he had found certain of his friends staunch and some of his immediate professional colleagues ready to repudiate for him the hard and evil things that were said of him; but the professional leaders, his teachers, and the College of which he was a Member did nothing. When, therefore, the strife of battle was over he was left an angry and unsettled man. There was not any shiftlessness in his hesitation to embark again in private practice; his reluctance was due to the feeling that he intended not again to be placed in so defenceless a position. He had prepared all things to live the life of a general practitioner of medicine. He had chosen his locality, and furnished his house to that end. Through no fault of his own the house had been destroyed, while enforced neglect of his practice had severed his connexion with his patients. It was necessary for him to start entirely afresh, and the ardent solicitude of a young husband was now replaced by the soreness of a disappointed man, who, though successful in obtaining his rights in a law court, had none the less been subjected to physical and moral savagery, and had lain under undeserved stigma at the moment when he was most in need of sympathy.

THE FIRST MEDICAL WEEKLY.

Wakley was a well-educated man as times went, and he wrote sound, forcible, and grammatical English with a facility and clearness which have been known to escape the highly cultured in our own day. His individual disappointments had turned a vigorous mind towards the reform of the abuses with which he connected the precarious position in which he found himself at the age of 28, and exactly at this juncture he met William Cobbett (Fig. 1), the link that bound them appearing to be that Cobbett, who was editor of the *Political Register* and the *Evening Post*, and the accepted Parliamentary candidate for Coventry, firmly believed that he at one time had also been destined to be a victim of the brutality of Thistlewood's maddened followers. He was 30 years Wakley's senior, was an eloquent propagandist and a brilliant journalist, and he inspired Wakley with the view that reform of the medical profession, which had become Wakley's *idée fixe*, could only be undertaken by the founding of a journal. Abuses similar to those which Cobbett and his school spied out in the body-politic were in the case of the medical profession clear; no one could deny that nepotism was rampant, that pecuniary traffic determined success, and that the educational curriculum was faulty. But the conditions were too special to lend themselves to general public treatment; no wide audience in a lay newspaper would have understood the hardships complained of without a tedious amount of preliminary explanation, whereas medical men, who had undergone the queer curriculum and were living by the exercise of a disorganised calling, would have no difficulty in appreciating the need for root and branch reforms. To deal with the situation THE LANCET was issued on Sunday, Oct. 5th, 1823, from the anonymous editor's dining-room in Norfolk-street, Strand, where Wakley had now established himself in a modest general practice; and while the contents were nominally addressed to public as well as medical readers, familiarity with professional situations was assumed.

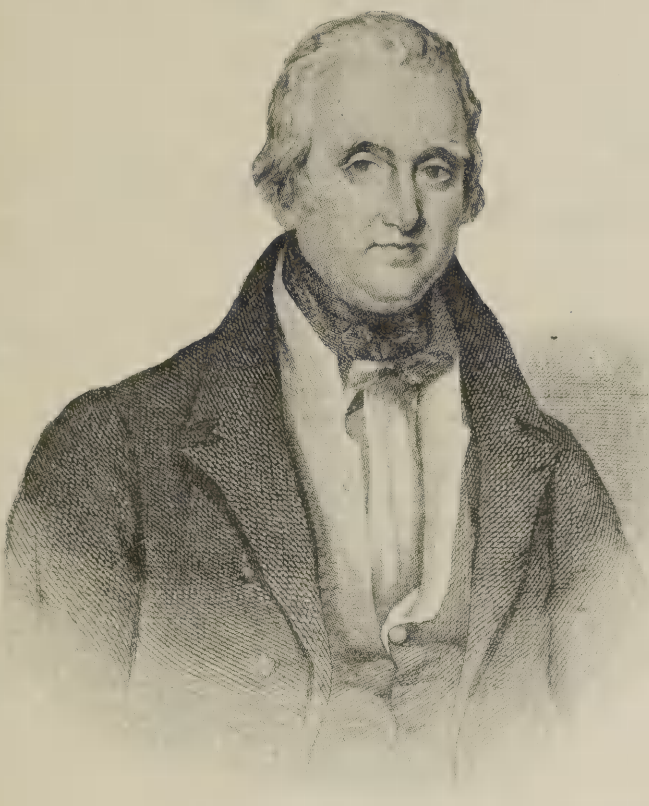


FIG. 1.—WILLIAM COBBETT.

The first number contained a prefatory statement to the effect that the objects of the new journal, which though inspired by London experience were not to be thus confined, would be :—

> "To produce a work that would convey to the public and to distant practitioners, as well as to students in medicine and surgery, reports of the metropolitan hospital lectures."

And, secondly :

> "To give a correct description of all the important cases that may occur, whether in England or on any part of the civilised continent."

And, as though this programme was not sufficiently inclusive, Wakley added to his promises the following :—

> "Our columns will not be restricted to medical intelligence, but, on the contrary, we shall be indefatigable in our exertions to render THE LANCET a complete chronicle of current literature."

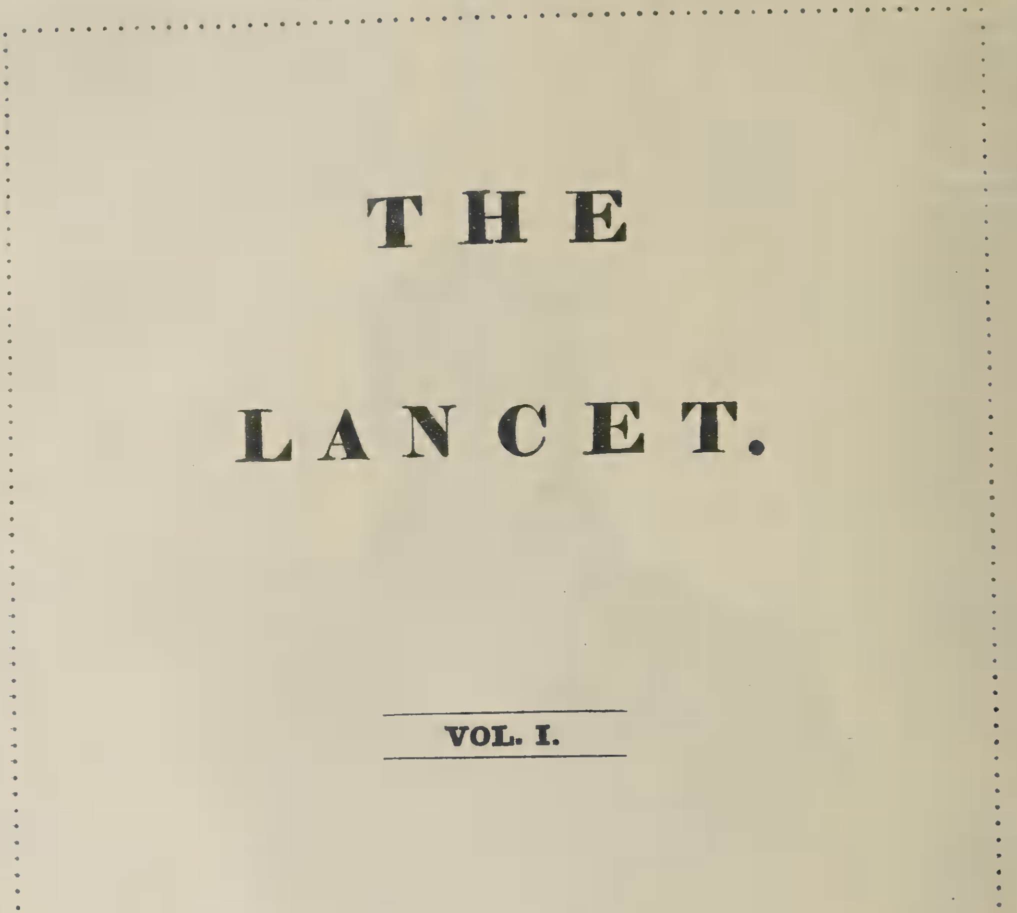
We may note how far in the space of 36 small octavo pages it was attempted to keep the promises made. The metropolitan hospital lecture selected for report was one delivered on Oct. 1st, 1823, by Sir Astley Cooper, and it is a good example of chatty exhortation to a medical school, the students present being described by the Editor—it may be feared with an eye on possible subscribers—in these words :—

> "We never before witnessed so genteel a surgical class; the sight was most pleasing, for they all appeared gentlemen of cultured manners and good education."

A leading article succeeded entitled "Politics," which showed that it was the editorial intention to rely upon the Radicalism of Cobbett's school for general social views. Some notes on the drama were followed by three carefully written clinical cases from Newcastle-on-Tyne, from Lynn in Norfolk, and from Bedford, indicating the design to excite the interest of widely separated centres. Then came a long quotation, under the heading Medical and Surgical Intelligence, from the columns of a monthly medical journal, the *London Medical Repository.* In this excerpt Mr. Henry Earle, assistant surgeon to St. Bartholomew's Hospital, carries on a controversy with Sir Astley Cooper as to whether fracture of the neck of the thigh-bone ever unites, and also as to whether Cooper had said that Earle was maintaining the contrary view in order to depreciate Guy's Hospital and its teaching—for Cooper, while lecturer at St. Thomas's Hospital, was surgeon to Guy's Hospital. From the journalistic point of view there was considerable sagacity in publishing in the first number of the new medical paper, and in the front pages, an address by the acknowledged leader of surgery, while reprinting, as a quotation, a very civil but candid reflection upon his judgment. This article struck that note of criticism without fear of persons which Wakley intended should be characteristic of his venture, and which, as we shall see, involved him in a group of actions for some ten years. The offer to supply a "complete chronicle of current literature" was met by quoting from the *London Magazine* a letter by "Elia" to Robert Southey, whom the Editor of THE LANCET described as a "sack-hunting hypocritical rhymer," thus expressing the opinion of the Radical party upon the Poet Laureate. A short paragraph, which promised mysterious revelations concerning a clergyman, led to the editorial request for certain information concerning that person, with which the number closes. Having regard to the direction which those revelations afterwards took, we cannot be surprised that in the second number the Editor of THE LANCET has changed his printer.

The following is the first title-page in facsimile (Fig. 2).

Fig. 2.—The First Title-page.



THE

LANCET.

VOL. I.

LONDON:

PRINTED AND PUBLISHED BY J. ONWHYN,
4, CATHERINE STREET, STRAND:

AND SOLD BY ALL RESPECTABLE BOOKSELLERS IN THE
KINGDOM.

1823.

The dotted line indicates the size of the page.

THE FIRST TEN YEARS.

A FIERCE STRUGGLE.

FOR the first ten years of its existence THE LANCET was a duelling ground for a series of fierce encounters between the Editor and the members of the privileged classes in medicine. The lectures of certain of the great hospital surgeons and physicians were reported in its pages to the exasperation of the lecturers, and the delight of the profession at large and the students. The great men feared that their fees as teachers in the metropolitan schools would diminish if the cream of their teaching could be bought for sixpence a week instead of £5 a session; while every medical man or student, unable by circumstances to attend the classes of his leaders, rejoiced in the chance offered to him of acquiring familiarity with their methods and theories through the medium of print. The meetings of the medical societies, again, were reported at such length as their importance appeared to warrant—a proceeding which the officials of the societies objected to as an infringement of copyright. They considered that the editor of the Transactions of the Society, a person appointed by themselves, enjoyed the copyright as a matter of common sense as well as common law. These officials belonged, as it was quite right that they should, to the class from which the honorary staffs of the hospitals were selected, and they thus felt doubly outraged. Briefly, from the beginning the hospital surgeons and physicians were ranged in unbroken phalanx in opposition to the new and, as they considered it, mischievous print. The officials of the medical societies followed suit; and the office-bearers of the medical corporations, the practices of which were scathingly reviewed in early issues of THE LANCET, were not slow to scent their foe. Everyone who had anything to gain by the peaceful reign of existing methods in school, hospital, or corporation—a definition which included most of the influential members of the profession—looked with uneasiness at the growing power and popularity of the new journal. Especially were they frightened at the new idea that medical affairs could be treated as an ordinary, though elevated and important, section of human activity, and they were positively shocked to see the common rules of justice and the prevalent methods of business quoted publicly in connexion with these affairs, which they had been bred to consider sacrosanct.

Wakley for his part was quick to discover his enemies, and their tactics dictated his. For the first few weeks THE LANCET attracted no particular attention, and such notice as it received was complimentary. Then a few of the privileged classes became frightened, and in return sought to frighten Wakley. They denounced him as a literary pirate and a disseminator of moral garbage. His replies were chiefly in the nature of reflection on the complete and fretful ineptitude of his denunciators. He pointed to his growing circulation, scattered, with doubtful taste but cruel point, a few nicknames, and hinted at astonishing revelations of abuses arising out of the fact that publicity had hitherto been avoided by hospital officials. As a natural pendant to his assertion that the elections of the staffs of the various metropolitan hospitals were made at the instigation of pure nepotism, accounts were given of maladministration in the schools and malpraxis in the wards. And upon these came action and cross action. Certain of the criticised were compelled to proceed legally against their critic, while their defence outside the law courts, too keenly and bitterly undertaken by friends or rival journals, on more than one occasion laid the defenders open to counter charges of misrepresentation. In the first ten years of the existence of THE LANCET the paper was engaged in no less than ten actions, its opponents being eight separate persons. The proceedings in these various actions constitute an interesting phase in the history of medical reform. Six were for libel, the aggregate sum of £8000 being claimed for damages; the aggregate sum of £155 0*s*. ¼*d*. was awarded, while the Editor's costs were largely defrayed by public subscription. The articles complained of may have been indecent journalism—thus those who suffered never wearied of saying; but they were certainly truthful in all the essentials. Reference in some detail will have to be made to certain of these cases, but it should be remembered that personal libel constituted only an episode in the design of the paper. That the Editor himself revelled in a row led to a disproportionate prominence being given to events which were the necessary accompaniment to a brave policy of reform. The two things which came almost at once to constitute the design of the paper were: (1) To supply medical information which was available at that time to but few people; and (2) to show that hospitals were not served, and that students were not trained, by persons selected for their merits. The libel actions arose out of the publication of supporting evidence, and ceased as reform followed.

COPYRIGHT IN LECTURES: THE ABERNETHY CASE.

The publication of Sir Astley Cooper's lectures in the place of honour in the new paper proved a fine venture. Their issue was unauthorised, but the view of Wakley and his supporters was that no permission was needed for the publication. The lectures attracted and held readers, and hardly less important from a business point of view was the prestige that their publication at once conferred upon THE LANCET. Sir Astley Cooper (Fig. 3) was at the highest point of his professional fame, his unrivalled reputation being enhanced by wealth, personal attractiveness, popularity, a recent baronetcy, and a high position in the social world. As long as Cooper himself did not resent publication of his lectures the frightened owners of vested interests were unable to cry down the paper as a gutter production. As a matter of fact, Cooper went further, probably being soundly advised that his rights in the matter would be difficult of definition. He said that the publicity which was being afforded to him by the publication of his lectures with his name attached, excerpts from which were appearing in the daily papers, exposed him to the critical gaze of professional brethren; but he added: "I care not who may be acquainted with the doctrines I advance, the instructions I give, or the principles I inculcate whilst in this theatre; therefore I am perfectly indifferent as to who publishes them and equally indifferent as to who may be made acquainted with them." Later, however, he made a modification of this view. On learning that THE LANCET, the secret of whose editorship was at first complete, was produced by an old pupil at the United Hospitals of Guy's and St. Thomas's, Cooper called on Wakley in the character of a patient, and caught him in the act of correcting a proof of one of the lectures. He there and then entered into a compromise under which no objection would be raised to the publication of the lectures if the name of the author was suppressed. The young Editor, having reaped the advantage accruing from a known association with the great Sir Astley, agreed that it was not the name but the teaching that mattered, and accordingly, after the fifteenth lecture had been published, the communications became anonymous.

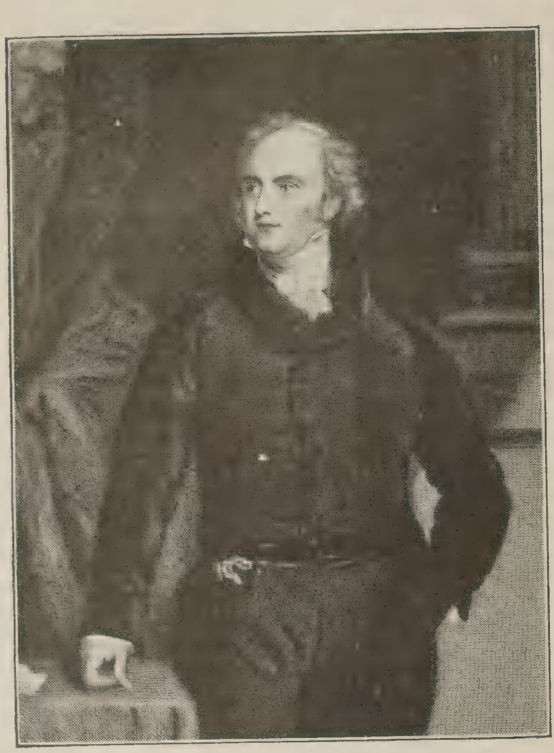


FIG. 3.—SIR ASTLEY COOPER.

But the famous Abernethy (Fig. 4) in the following year took a different line, and on the appearance of his clinical lectures in THE LANCET instituted proceedings which have had considerable influence on the law of copyright. Abernethy was backed by many of his colleagues, who said that the whole thing savoured of advertisement, and who may have felt that the revelation of their educational methods would not always redound to their credit. Abernethy objected to transcripts of his lectures, and was ill-advised enough to say, further, that the reports were inaccurate. THE LANCET accordingly reported one of Abernethy's lectures exactly as he delivered it. Abernethy's bluntness and colloquial conversation were notorious, and this is the sort of thing which was published:—

> "If I am wrong I shall be very happy to have my errors pointed out and corrected. I'll be hanged if erysipelas is not always a result of a disordered state of the digestive organs. . . . Egad, it is a travelling disease, and, as I say, the parts are disposed to swell. . . . If it be seated in an unimportant part, in the name of G— let it go there. . . . O, said the dresser, it is a case of erysipelas, and he only came in last week. Good G— said I, is it possible?"

Abernethy found it embarrassing to read his expletives in cold print. He was second only to Astley Cooper in the surgical hierarchy of London, he was regarded with peculiar reverence as the exponent of John Hunter's teaching, and he brought an action for an injunction against Wakley, the printers, and the publishers. In the first stage of the case before Lord Eldon, Wakley successfully resisted an attempt to obtain the injunction, when the *London Medical Repository*, politely referred to by Wakley ever afterwards as the "Mausoleum," expressed the view, in the picturesque language of the time, that the action of THE LANCET was no better than thieving. There immediately appeared in THE LANCET an article daring Abernethy to attempt to interfere again with the publication of his lectures. It was pointed out that it was of public importance that these lectures should be good, inasmuch as, by a by-law of the Royal College of Surgeons of England, recently framed by the Court of Examiners, of

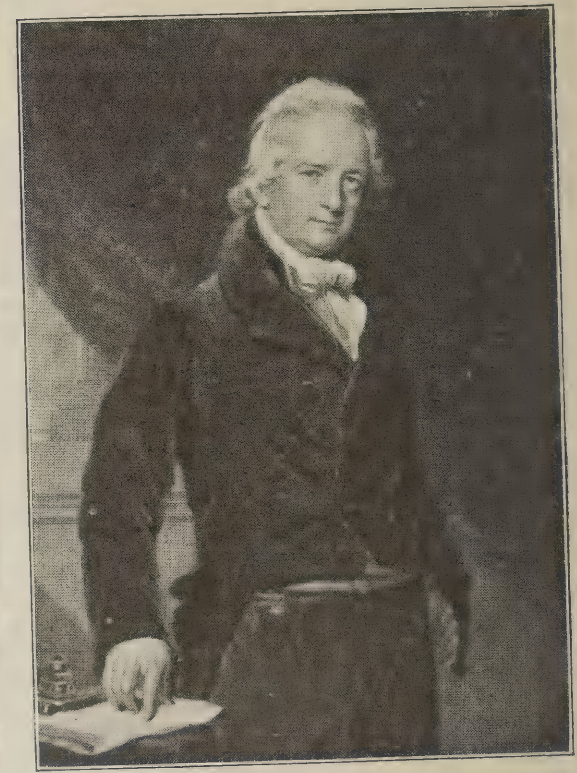


FIG. 4.—JOHN ABERNETHY.

which Abernethy himself was at the time a member, the London students could not abstain from attending Abernethy's lectures if they wished. This by-law compelled all the medical students in London to attend lectures by some five persons, of whom Abernethy was one, and the wrong that could be done under the exercise of such authority seems to have been the first thing to direct the attention of THE LANCET to abuses within the College. But from this moment the policy and procedure of the College were always submitted to close scrutiny.

At this time only six London hospitals possessed medical schools—namely, St. Bartholomew's, St. George's, the London, Middlesex, and the United Hospitals of St. Thomas's and Guy's; Westminster Hospital was at the time a dispensary, Charing Cross Hospital can be best described as a large ambulance station, University College and King's College respectively came into existence in 1833 and 1839, and St. Mary's Hospital dates as a separate entity from 1845. So when it was pleaded for Abernethy that the publication of his lectures was likely to lead to the diminution of his surgical classes, and therefore to abatement in his fees, Wakley, who knew that this could not happen, wound up a leading article by saying, "In the name of God don't let us hear any more of such loathsome trash."

Abernethy immediately made a second application for an injunction and thereon occurred a stalemate. The Lord Chancellor went back on himself, and Abernethy now secured the judgment, but shortly afterwards the injunction was dissolved upon a motion from Wakley's side, Wakley in the meantime having published addresses by Abernethy precisely as if no injunction existed, on the grounds that the lectures were delivered in a public capacity. The new argument placed in Wakley's hands was supplied by Abernethy himself, who tendered his resignation as a surgeon to St. Bartholomew's while desiring to remain a lecturer. The governors refused to accept his resignation as a surgeon unless he gave up his lectureship. That proved, said Wakley, that the lectures were delivered in a public capacity as surgeon to a public charity, while a certain section of the students of the metropolis must attend them whether they liked or no. The argument was uncontroverted and Lord Eldon removed the restriction.

And now legal action followed indirectly upon the publication of Sir Astley Cooper's lectures. For these appeared in book form, edited by Frederick Tyrrell, a colleague, when Wakley, smarting under a good many accusations of having stolen Astley Cooper's work, asserted that the text of the lectures, as now published, had been bodily stolen from THE LANCET, a few illustrative, and mostly unimportant, cases having been tacked on. The plagiarism could not be denied, nor could the fact that the clinical notes added were seriously inaccurate, but such was the venom of Wakley's remarks on the subject, so thoroughly did he hold up the unfortunate Tyrrell to contempt, that he can hardly have been surprised when Lord Chief Justice Best fined him £50 after an action for libel. Lord Chief Justice Best thought that the author had been libelled not so much by the things said as the way in which they were said. The fine and costs were immediately paid by public subscription.

The law of copyright in lectures under the old Act was not very clear or definite, but the Act 5 & 6 Will. IV., c. 65, has been repealed, and lectures, as well as all other copyright property, are now governed by the Act of 1911, which came into operation July 1st, 1912. Common Law right in the matter of copyright property has been done away with, and everything depends on statute in the case of an unpublished work "at the date of making the work, if the author is a British subject or resident within His Majesty's Dominions." Copyright under the statute means "the sole right to produce or reproduce the work or any substantial part thereof in any material form whatsoever, to perform or in the case of a lecture to deliver the work, or any substantial part thereof in public." Under section 35 "lecture" is defined to include "address, speech, and sermon." Under section 1, subsection 3, of the Act, "publication" does not include the "delivery in public of a lecture," and under section 2, subsection 1, par. v., the following act shall not constitute an infringement:—

> "(v.) The publication in a newspaper of a report of a lecture delivered in public, unless the report is prohibited by conspicuous written or printed notice affixed before and maintained during the lecture at or about the main entrance of the building in which the lecture is given, and, except whilst the building is being used for public worship, in a position near the lecturer; but nothing in this paragraph shall affect the provisions in paragraph (i.) as to newspaper summaries."

And paragraph (i.), as to newspaper summaries, runs as follows:—

> "(i.) Any fair dealing with any work for the purposes of private study, research, criticism, review, or newspaper summary."

From this statement it is clear that an elaborate reproduction of a lecture is forbidden when the requisite notice is affixed, but, notice or no notice, a reasonable newspaper summary is not an infringement. These restrictions only refer to the delivery of a lecture in public. When a lecture is delivered privately—there have been various legal decisions on the point—then any public report is an infringement of copyright. The present position has been reached largely through the original action of THE LANCET in publishing Sir Astley Cooper's lectures.

MALPRAXIS IN HOSPITALS: THE BRANSBY COOPER CASE.

Of the innumerable small quarrels that arose and were threshed out in its columns during this decade it will serve no purpose to speak. They would not be illustrative of anything in Wakley's character that is not sufficiently made clear already. They were but episodes in a contentious career, the border warfare incidental to Wakley's invasion of the privileges of the leaders of the profession. But his fight for the right to print the lectures of hospital surgeons and his determined attacks upon hospital practice, when wrongly carried on, must be looked upon as organised campaigns. These formed one-half of his policy of aggression as a reformer; the other half was formed by a crusade against the Royal College of Surgeons of England.

If the publication of their lectures aroused irritation and even apprehension, the suggestion to publish notes of the proceedings in the operation theatres aroused fury in the staffs of the hospitals. Wakley, however, announced his intention of reporting operative procedures for the instruction of the general medical constituency, and when he found that his reporters were to be excluded from the operating theatres he declared war, stating that he believed that it was in the interests of the public that such reports should be made, and that only those people who were afraid of publicity—persons whom he persistently called "hole-and-corner surgeons"—would have any legitimate objection. Accordingly reports were published from the various operating theatres, even when the walls were placarded with prohibitions. The exclusion of the supposed emissaries of THE LANCET did not stop notes of all proceedings regularly appearing in the paper, and the articles were for the most part so well and temperately done that the connivance of the staffs was perfectly certain. Everyone could see that Wakley was helped from the inside in his criticisms of hospital practice, as he was later in his denunciation of the Council of the Royal College of Surgeons of England. But all the hospital reports were not favourable to the operators, malpraxis being noted at St. Bartholomew's, Guy's, St. George's, and St. Thomas's, and severe comments were sometimes added. Thus the writer of a report of an operation for strangulated hernia at the Middlesex Hospital went so far as to say that, seeing the unfortunate patient's plight when the operation was conducted, he could only conclude that it was the practice at the Middlesex Hospital for the surgeons to wait before operating until all chance of recovery had gone; and he added that only one patient had recovered from an operation for strangulated hernia at that hospital in the course of two years.

Many members of the London hospital staffs were incensed at such criticisms of themselves and their class, but the report of a lithotomy operation at Guy's Hospital by Mr. Bransby Cooper (Fig. 5), a nephew of Sir Astley Cooper, brought matters to a head. It was written in so malignant a style that the terrible mischief, as well as the power, of sensational journalism was remarkably illustrated by it; it was at once the very best and the very worst that such a report could be. The story was cast in dramatic form. It was divided into Act I. and Act II., while the result of an examination of the body after the death of the patient was added as an epilogue. The first Act set out the preliminary steps of the operation, which took 20 minutes, and clearly insinuated that, the original incision having been wrongly made, the operator lost his proper appreciation of the anatomical geography of the region, and attempted violently to effect a passage with his forceps where no incision had cleared the way—that in his attempts to reach the bladder he made a false passage. The second Act, stated to have lasted half an hour, accused the operator of having hopelessly lost his head. It described him as calling for all forms of instruments, notably for one, the scoop, that must have been useless until the foreign body was actually located; as asking for the assistance of his colleagues, and even his dresser; as complaining in front of the patient, of course unnarcotised, of his utter inability to understand the cause of failure to extract the stone; and, finally, when at last the operation was over, of attempting to explain the difficulties to the appalled assembly of surgeons and students, while the conscious and dying patient still lay bound upon the operating table. No more terrible picture of incompetency, of want of skill, want of nerve, and want of heart could be imagined than the picture that was drawn, and the epilogue was in keeping. A brief description of the parts concerned in the operation was followed by the most unmistakable insinuation that the reason why Mr. Bransby Cooper had failed to extract the stone from the patient's bladder was because his forceps had not been in the bladder at all.

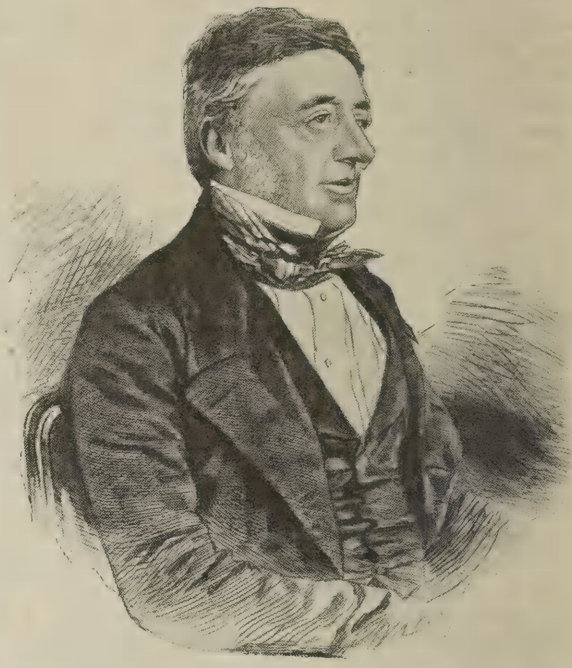


FIG. 5.—BRANSBY COOPER.

Stripped of all verbiage, the report meant that the authorities of Guy's Hospital had elected Mr. Bransby Cooper upon their staff because he was Sir Astley Cooper's nephew, that he had killed a patient by gross mistakes during an operation, and that he was so concerned at his exhibition of ignorance that he behaved with callousness to the sufferer. Nepotism on the part of the management and malpraxis on the part of the executive had been Wakley's accusations against the London hospitals, and now one set of circumstances appeared to him to prove that he was right in both directions. An action for libel immediately followed on the publication of the report, when Wakley was not entirely happy in his witnesses. It was fairly obvious that some of the information with which he had been supplied had been given in confidence, and that the informer could not be asked to vouch for it in a law court, and publicly. But, on the whole, the paper was able to maintain the accuracy of the article. A group of distinguished surgeons and pathologists spoke in behalf of Bransby Cooper: his excellent training, his creditable record, the difficulty of the operation, the possibility of anatomical abnormalities were all sworn to, and the jury, after an absence of two hours, delivered a verdict for the plaintiff of £100. It was clear that the jury believed the main statement that malpraxis had occurred, for on no other ground could they have let off THE LANCET so cheaply, having regard to the things printed. What had already happened in the Abernethy case happened in the Bransby Cooper case; the jury considered that THE LANCET had justified the main thesis, but ought to be fined for indecency of language. A public meeting was held on the following day, resolutions were passed that THE LANCET was conducted in the best interests of medical reform, and that a subscription should be opened to defray the expenses of the late action. Wakley asked for £408 7*s.* 9*d.*: £295 10*s.* Mr. Bransby Cooper's costs; £100 the plaintiff's damages; and £12 17*s.* 9*d.* otherwise made up. The sum was subscribed in the room, and certain subscriptions which reached the secretary later were given to the widow of Bransby Cooper's patient.

A FIGHT WITH AUTHORITY.

A FULL account of the constitution of the Royal College of Surgeons of England is outside the scope of this short contribution to medical history, but the headings of the story must be given to make the conduct of THE LANCET for a long period intelligible.

THE CONSTITUTION OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

By the Act of 1745 it was enacted that the Master of the Company which was the precursor of the College, and at least one of the governors, should be represented at every Court with one or two Assistants to constitute a quorum. It happened that in consequence of the death of one governor and the illness of another no legal Court was possible on certain occasions, when the Master and Assistants proceeded to business notwithstanding. Accordingly a Bill was brought before Parliament to legalise what had happened, and to reconstruct the Company as a College. A petition in opposition caught up this Bill when it had passed the Commons unnoticed and was in its final stage before the Lords. Lord Thurlow defended the privileges of the aggrieved Members of the corporation, who rightly considered that, if the maladministration were made legal, their privileges would disappear, whether the body were termed a Company or a College. The Bill was thrown out, but shortly afterwards a Royal Charter was obtained in an unexpected manner. For in the meantime the Company had accepted charge of Hunter's Museum, for which Parliament had voted large sums of money, and it became sound public policy to dignify its position. The new Charter sanctioned provisions which had been contained in the previous and rejected Bill, and when THE LANCET was founded this abuse was comparatively recent. It served as a weapon in Wakley's hands as soon as he became aware that the general designs for medical reform which he and a progressive staff of writers were advocating were finding in the College a powerful adversary. The chance of THE LANCET lay in a by-law passed by the College in 1824, making it compulsory for students to attend the lectures of certain hospital officials, the regulation to which reference has already been made. Certain of these lectures were being published in THE LANCET, and the contemporary medical press was excessively disturbed in its sense of what was right thereby, and freely called the editor a robber. But if the lectures were compulsory for the students before they could take their diplomas, the private character claimed for them by Abernethy and others was destroyed. A newspaper would have an undoubted right to report them, because it was to the public benefit to know whether instruction which the London medical man must receive was worth receiving. Lecturers chosen in this manner by the Council of the College were constituted public officials in their capacity as lecturers, and in addition to the importance and substantial fees thus ensured to them, could not claim all the privileges enjoyed by private individuals.

In another way THE LANCET was concerned in the working of this by-law. Some of the hospital surgeons appointed as the only persons whose lectures would be considered official by the Royal College of Surgeons of England charged their classes very large fees for attendance. Wakley had not been an affluent student, and had known many men poorer than himself, and he inveighed against the extraction of fees from their pockets for listening to lectures from persons whom he considered inferior surgeons.

The wording of the by-law was as follows :—

> That certificates of attendance at lectures on anatomy, physiology, the theory and practice of surgery, and of the performance of dissections be not received by the court except from the appointed professors of anatomy and surgery in the University of Dublin, Edinburgh, Glasgow, or Aberdeen, or from persons teaching in a school acknowledged by the medical establishment of one of the recognised hospitals, or from persons being physicians or surgeons to any of these hospitals.

It will be seen that this by-law conferred upon the surgeons and lecturers—they were the same persons—of the metropolitan hospitals authority and monopoly in the education of the London students at a time when Wakley was attempting to show that these persons were elected upon corrupt principles.

The story was well set out in a letter to THE LANCET written by the witty James Wardrop (Fig. 6), whose name may still be familiar from its occurrence in some text-books of surgery as the originator of the treatment of aneurysm by distal ligature. The letter purported to be addressed to the Court of Examiners of the College, but was really designed to catch the attention of the Members and to summarise their obvious grievances. It rallied the Court of Examiners on their senility, as proved by their recollection of remote events and ignorance of recent happenings, and recalled the fact that in 1797 an attempt had been made by the then Company, the Corporation of Surgeons, to be erected into a College under a Bill indemnifying the authorities of the Corporation and depriving the commonalty of their rights. According to Wardrop this Bill was rejected because the Corporation had received in fees and quarterages money which they had spent on themselves, and he said that Parliament had become aware of the fact. Two years later, as we have seen, the Corporation accepted the charge of Hunter's Museum, and obtained a Royal Charter for the purpose, which Charter sanctioned most of the provisions contained in the rejected Bill. Wardrop's point was that, while Parliament had refused to pass a Bill which excluded the commonalty from a share in the government, a Royal Charter had subsequently deprived them of legal rights to the franchise, this being also the contention of THE LANCET. But Wardrop added a description of the way in which the College at that time interpreted the charge of the Hunterian Museum:—

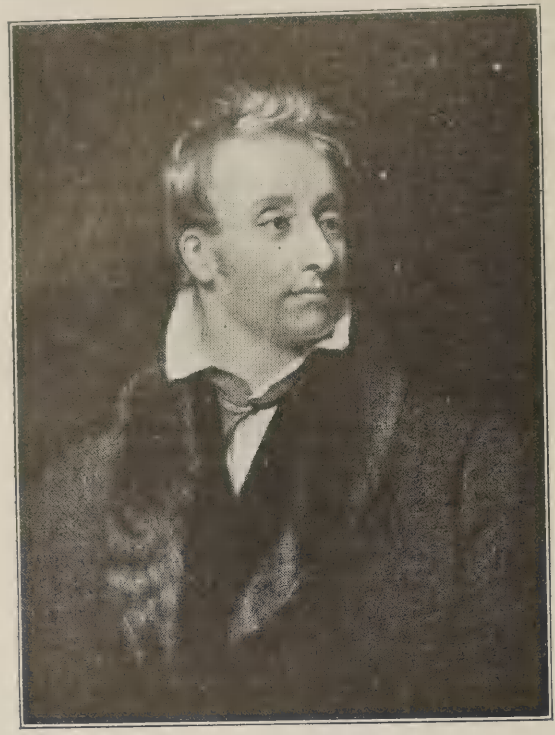


FIG. 6.—JAMES WARDROP.

> "I need hardly remind you, Sir," he wrote, "that the magnificent collection of John Hunter was purchased by Government, and that a loan of a large sum of money was supplied from the same source to erect a suitable building for its reception. Do you think the motive for such liberality was that 21 persons should have power to lock up the museum for eight months in the year? When their Bill was before the House of Lords it was said that they had a theatre without lecturers and a library without books. It is true that we have now some lectures on comparative anatomy and surgery; but the man best qualified to give the lectures on the former subject is doomed to fill the servile office of conservator of the museum. They have also books, and some years ago Sir William Blizard promised that the library should soon be opened. We are still outside the door, however, and a part of the bust of Sir William, like the molten calf of the Israelites, may go down our throats (by the adulteration of bread or the drinking of soda-water) before we shall see a book, especially the Hunterian MSS. The museum is opened twice a week during four months in the year; the hours of admittance are from 12 to 4 o'clock. This does not extend to the whole collection, for the gallery is only accessible from 12 to 2 o'clock. Should the extensive and varied information and indefatigable kindness of the conservator of the museum, Mr. Clift, tempt an unfortunate individual to remain a minute after the clock has struck the hour his crime is announced by the loud and angry sound of the beadle's bell. This noisy warning is very quickly repeated, and lest he should not understand it the beadle calls out in a most autocratic tone, 'This way, Sir.' The College Member descends the steps muttering perhaps, as I have done, 'Any way but this way, Sir.'" (Fig. 7.)

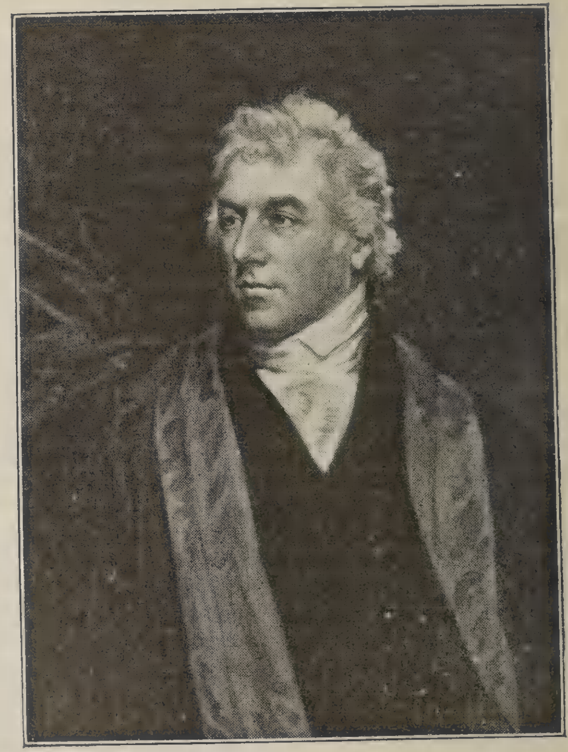


FIG. 7.—SIR WILLIAM BLIZARD.

The apparent purpose of the by-law, it must be admitted, was to aggrandise the hospital surgeon, at whose disposal it placed the lucrative post of lecturer, giving him a monopoly in the payment for and management of the medical education of the student.

AGITATION: CONSTITUTIONAL AND OTHERWISE.

The attitude of THE LANCET for several years became increasingly inimical to the Royal College of Surgeons of England, and not only because it was the offending by-law which led to the action with Abernethy, or because the expert witnesses for the plaintiff in the Bransby Cooper case were high officials in the College. The constitution of the College was an outrage to the radicalism which underlay the theories and practice of all the early staff of the paper. When Wakley maintained that the by-law making it compulsory for medical students to attend the lectures of certain hospital surgeons was a direct way of extracting from the pockets of students large fees for attendance upon the lectures of College officials, and when he associated the College with the nepotism which he was exposing at the hospitals, he was really shaping, almost unconsciously, for a great revision of medical education, and a standardisation of the professional calling. As this became clearer he obtained warm assistance from within the College, sometimes anonymously and sometimes openly, as in the cases of the famous Sir William Lawrence (Fig. 8) and Wardrop. To the credit of Tyrrell, who had been driven to law by Wakley's acrimony, he was also to be found among Wakley's open supporters. A meeting was now organised by THE LANCET, with Lawrence in the chair, of Members of the College, when a resolution was passed that a petition should be presented to the House of Commons for a new Charter. Abernethy rejoined with a circular putting out the views of the Council of the College, in a long explanation of the good work done by the examiners, and of the solicitude with which the Hunterian Museum was cared for. But owing to the general feeling with regard to the destruction of Hunter's manuscripts the last plea counted for nothing, and the movement went forward. The petition was presented, and on the motion of Henry Warburton (Sir Robert Peel, Home Secretary, having at the last moment refused support) the House acceded to the motion, and the College was bidden to render an account of its stewardship.

The prompt victory, however, proved an entirely barren one, for when the matter came to debate there was no one in the House sufficiently well-informed to meet the substantial opposition. Wakley's supporters did not, however, lose heart, and the altercation was carried into the very precincts of the College, and became a literal and physical battle. The occasion arose in a comical manner. Advantage was taken of an official mistake which excluded naval surgeons from the levées of the Sailor King. A party of reforming Members attended the delivery of a Hunterian lecture, and before the lecturer entered Wakley rose and delivered an oration of his own, which resulted in a resolution being passed calling on the Council to vindicate the rights and dignities of its Members in other ways as well as by insisting upon proper treatment of the surgeons of the navy. The resolutions were laid before the Council after the Hunterian lecture, when by a majority of 15 to 3 the Council found themselves unable to act upon them, though the three most important men on the Council—Sir Astley Cooper, Sir William Lawrence, and Sir Benjamin Brodie—formed the minority.

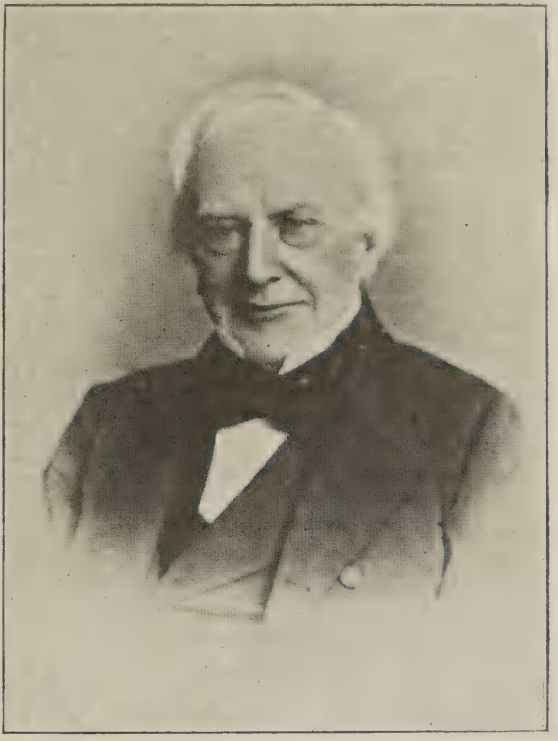


FIG. 8.—SIR WILLIAM LAWRENCE.

Wakley announced the intention of taking advantage of the next Hunterian lecture to convoke a meeting of the Members, in order to compel the espousal of the cause of the Members in general, of naval officers, and of others equally oppressed. Whereupon the Council issued a notice that no public discussions could be allowed in the theatre of the College, and that the doors would not be opened till a few minutes before the delivery of the lecture. Accordingly the doors of the College were not opened till a few minutes before 4 o'clock, when an assembled crowd of Members entered, while simultaneously the President, the Council, and a group of Bow-street officers entered at the other end. Wakley stood up in the body of the hall, and asked who was responsible for the exclusion of the Members from their College till the last moment. A Bow-street officer was sent to order him out; he refused to go, and was supported by the mass of the meeting. The President left the theatre, and Wakley addressed the meeting and moved a vote of censure on the Council for their treatment of the Members. The Secretary of the College re-entered with an order from the President and Council, addressed to Wakley personally, that he should quit the theatre. Wakley refused, and a number of Bow-street officers proceeded to expel him by force. Members ran to his assistance, and after a considerable brawl, Wakley gave a Bow-street officer, who had struck him, into the custody of other officers outside. These refused to take the charge, and Wakley proceeded to Bow-street followed by an increasing crowd, where the magistrate who was sitting stated that he could not grant a warrant. Enormous publicity was given in the newspapers to the whole affair, and a rule in the Court of King's Bench was secured, the gist of which was to make it illegal for the Members to discuss in the theatre of the College any subject not connected with the duties of the Corporation.

The unsatisfactory position thus left endured for some three years, and at this point The Lancet made a bad mistake in policy, and one which had not the endorsement of its best supporters. Wakley proposed to substitute for the Royal College of Surgeons of England a new College of Medicine, which was to have a new Charter, and to do everything as properly as the Royal College of Surgeons of England, in his view and in the view of many vociferous publicists, did everything improperly. It was a socialistic dream, in which all legally qualified practitioners, physicians, surgeons and consultants, apothecaries, general practitioners and consultants, were to be associated on equal terms, and were to ballot annually for their officers, and to conduct examinations on a system of medical juries. The candidates at these examinations were not to be required to produce any certificates whatsoever; capability of passing the examinations would be the only professional qualification for obtaining the diploma.

We all know now that for the profession of medicine, at any rate, the examination test is not a sufficient test of practical knowledge, and that students must follow a prescribed course, and acquire their knowledge at properly equipped centres. But 90 years ago this was not so generally accepted, and there were still those who thought that ability to support a thesis, on the mediæval plan, ought to be sufficient trial for the aspirant. For three years The Lancet carried out what was really an agitation against the Royal College of Surgeons of England under the guise of founding a new College of Medicine, which was, of course, without the elements of existence. Unless the Crown granted a Charter, such an association was useless; unless the State recognised the diplomas of the new body there would be no inducements for candidates to present themselves. A Charter had recently been granted to the Royal College of Surgeons of England, together with money, and against this Charter a petition presented to Parliament had practically failed to effect anything. The House of Commons considered the new scheme the outcome of private ill-will against the officers of the existing College, and at length Wakley acknowledged failure along that line. He had done as much as was possible in his private capacity, and as a journalist he had prejudiced the cause he had at heart by having to own to a complete failure. It remained now for Government to carry on the work that he had commenced, and to carry it on with a far larger scope. The Royal College of Surgeons of England was not the only medical corporation in the kingdom that did not do its duty by its commonalty, and the behaviour of the hospital officials of the metropolis was not the only feature in medical education that needed improvement in the interests of the students. A thorough scheme of reform devised for the good of the public as well as of the profession—in short, a new Medical Act—was wanted, and this could only be carried through with the aid of a party in Parliament. The failure of the London College of Medicine showed Wakley that he must not expect much from any coöperation of the medical profession—in this case a testimony to their good sense—and he resolved to transfer the scene of his struggles from Lincoln's Inn Fields and the columns of The Lancet to Westminster. Just before the accession of Queen Victoria, Wakley headed the poll in a Parliamentary election for the large borough of Finsbury.

MEDICINE AND THE PUBLIC:

Appeal to Public Interests.

During the ten years which are covered between the founding of The Lancet and the first attempt of Wakley to enter Parliament, the pages of the paper had altered in character; success had both broadened the aims and concentrated them. There was no endeavour kept up to diffuse general information, but the universality of medicine in itself, as permeating every circumstance and activity of life, was being discovered. The vitally important questions of the medical practice at the hospitals, of the constitution of the Royal College of Surgeons of England, with special reference to the influence of its by-laws upon the rights of its Members and the education of students, remained as subjects that would be discussed and re-discussed until practical measures of reform were put in hand. But at the same time the first avowed aim of the paper—namely, the dissemination of authoritative medical information, was kept steadily in view. Though a large proportion of the space was taken up by piquant, not to say scurrilous, articles and correspondence, arising out of situations now taking shape as advanced professional politics, the columns devoted to scientific reports were regularly filled with topical contributions from good men. And these undoubtedly benefited in their practices by the appearance of their work in a journal which appealed to a public unusually wide for scientific writers. For The Lancet formed the first popular medium for the interchange of medical thought, while constant openings were given for exercise of that thought.

During these ten years a large and varied number of matters were brought forward in which the public was profoundedly interested, when the medical side was the one dwelt upon. Publicity and a reputation for fearlessness had brought to THE LANCET a heavy mail bag, and the subjects of the administration of the Poor Law, of the Anatomy Acts, of the adulteration or sophistication of food, and of the conduct of coroners' courts were, for example, regularly ventilated.

THE ADVOCACY OF MEDICAL CORONERS.

The attitude taken was professional, and one chief contention in the pages of THE LANCET was that the abuses known to exist in the " Crowner's Quest " would be immediately reduced, or substantially abolished, if the coroner were a medical man. Consequently one of the earliest regular tenets which the readers of THE LANCET were expected to hold was that the office of coroner should be vested in a doctor. The idea was a new one, and to many lawyers, no doubt, also appeared a shocking one, but whether THE LANCET were right or not in insisting that the coroner should possess medical qualifications, thereby implying that under medical coroners all abuses would cease, many writers to THE LANCET had no difficulty in showing that the coroners' courts at the time were rife with abuses. Some of the examples that were printed in THE LANCET during 1828, 1829, and 1830, in illustration of the view that an inquest confided to the supervision of a non-medical coroner presented so many obvious opportunities of error that it ceased to be a public safeguard, are undoubtedly very remarkable. To mention only a few, there is the story of a case of poisoning by prussic acid in which the jury were clearly misdirected. They brought in a verdict of " Suicide during temporary derangement," when there was not only no evidence pointing towards suicide or insanity, but when the possibility of an accident having occurred, and the probability that the accident had occurred through the carelessness of some person other than the deceased, would have been clear to anyone who knew, as the coroner apparently did not know, what was the poisonous dose of prussic acid and what the therapeutic use of this deadly remedy. Another inquest is discussed at some length where a verdict of manslaughter was given against an operating surgeon whose procedure had been perfectly correct, while the fatal injuries which the surgeon was supposed to have caused might have been the natural—that is, pathological—lesions due to the patient's condition, or might, at any rate, have been the natural sequels to such lesions. Only a medical man could have interpreted the medical evidence to the jury in such a way as to ensure justice being done. In a third case a jury brought in a verdict of " Died by the visitation of God and not in consequence of the neglect of any person or persons," where it was perfectly clear to any medical man reading the evidence that the luckless baby, whose death was the subject of the inquiry, had been poisoned by over-dosing with mercury, and had been, in addition, neglected by the medical attendant. The coroner knew nothing of mercurial salivation, the only medical evidence forthcoming was interested, and as a result a miscarriage of justice occurred that would have been impossible if a medical coroner had presided. Another case where the pious but meaningless verdict of " Death by the visitation of God " was given by the jury at the express direction of the coroner, and where all the evidence pointed to the most human agency in the matter, was a wholesale catastrophe due to arsenic poisoning. A family circle having partaken of a particular pie, two died forthwith, a third some 24 hours later, and a fourth was exceedingly sick. The remnants of the pie were thrown into the yard, when some sows ate it, and died there and then. The sequence of events totally escaped the intelligence of the coroner, who obtained from his jury the verdict that his piety desired. The bodies were afterwards exhumed and the cause of death was then found to be arsenic poisoning.

FOOD ADULTERATION.

Adulterations of food were prominently dealt with both in correspondence and in editorial articles. The adulteration of bread with alum, of mustard with barley flour and colouring matters came in for comment, with all their possibilities—as then understood—dependent upon animal tuberculosis and unwholesome meat. In the course of a review the public attitude of THE LANCET towards adulterations of food and drink was laid down in the statement that it would be the duty of the journal never to permit a proved fraud of this description to escape unnoticed, but never to lend the pages of the paper to the creation of epidemic terror by publishing the outcry of every visionary. We shall see that 20 years later THE LANCET, having exactly the same attitude, instituted an inquiry into the abuses of adulteration, under which steps were taken to prove all the charges made.

As with the subject of medical coroners, the medical side was insisted upon in all the editorial articles dealing with food adulteration. But the stated or implied intention to display medicine as a public servant and not as a mysterious councillor in that day of social history was a new idea, and one not altogether grateful to certain practitioners. It was said by the critics of the way in which the paper was being conducted that it was no part of medical men to meddle with the dispensation of the law, their rôle being to await requests for advice. But the closer identification of medical work with social well-being was acclaimed by public men as a valuable departure, such pertinent questions being asked as :—Why should a coroner call a scientific witness when he does not and cannot know that the death is unnatural ? or, How can a dishonest tradesman be convicted if evidence of his guilt, only possessed by scientific men, is not supplied ?

ANATOMICAL STUDY : BODY-SNATCHING AND MURDER.

The legislation in respect of anatomical study formed another topic of frequent debate in the pages of the paper, the balance being held equally between the scientific and social scales. The arduous position of hospital students at the time of the foundation of THE LANCET was aggravated by the difficulty of obtaining bodies for dissection, and the appearance of the resurrectionist followed as a natural consequence of the scarcity of subjects.

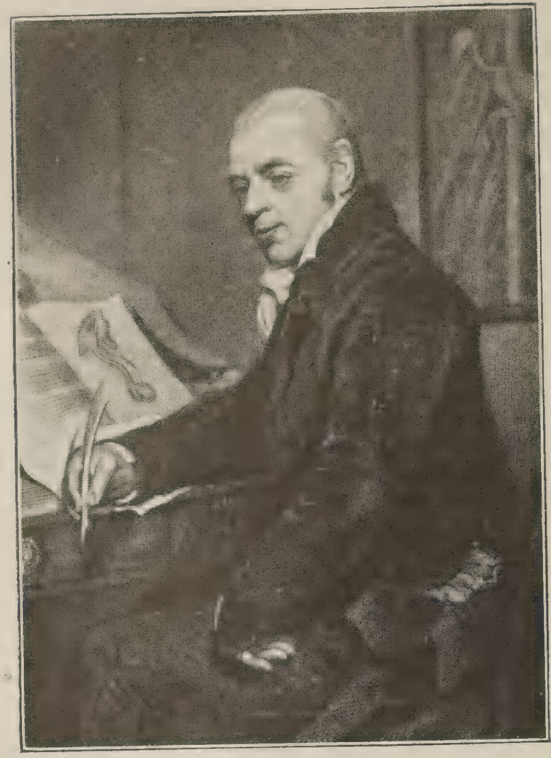


FIG. 9.—JOSHUA BROOKES.

The large sums which had to be paid by students to obtain materials wherefrom to learn practical anatomy, and the poor substitutes of plates and diagrams with which they had too often to be contented, were blots on the system of medical education, while rifled churchyards constituted a grave scandal. Suddenly a tremendous element of terror was introduced into the situation by the tragedies in Edinburgh with which the names of Burke and Hare are associated in infamy. The facts of the tragedies are too well known to call for a detailed description, and were set out with far more detail in the lay press than in THE LANCET. Suffice it to say that these two men were, during the years 1827 and 1828, engaged in carrying on a ghastly traffic in human bodies, their plan being to induce strangers, lads or women, to accept the shelter of their roof, when, being stupefied by strong drink, they were smothered and their bodies sold to certain Edinburgh surgeons for dissection. Hare gave Queen's evidence and so incriminated Burke as to lead to a sentence of death being passed, when Burke made a confession, admitting his guilty knowledge of murders extending over quite a long period.

A Parliamentary Committee was appointed in response to such revelations; without them it may be feared that the warnings of medical journalism would have gone unheeded. The reference of the Committee was to inquire into the state of anatomy as practised in the United Kingdom, and on this Committee Henry Warburton, whose name should always be remembered in the medical profession as an untiring champion of its true interests in Parliament, was appointed chairman. Among the witnesses were Astley Cooper, Brodie, Abernethy, and Joshua Brookes (Fig. 9), the greatest anatomist of the day and head of the largest private medical school in the metropolis. The evidence of the first and last of these proved that as far as London was concerned the teachers of anatomy were at the feet of the resurrectionists. Wakley was called as a witness in recognition of the numerous articles published in THE LANCET dealing with the inadequacy of medical education of the day, which was allowed to have led up to body-snatching and now was seen to put a premium upon murder. He began characteristically with a criticism of the Royal College of Surgeons of England, pointing out that the Council of the College had drawn up a by-law refusing to accept certificates of dissection except for work that had been performed in the winter season. The obvious effect of this was, he said, to increase the demand for subjects at that season and to raise the price. He considered the dissecting rooms during the winter to be much overcrowded with students and under-supplied with bodies, and laid the whole blame on the objectionable by-law of the College, which limited the number of recognised institutions to the detriment of the private schools. He repeated the counsel given in THE LANCET to obtain the coöperation of parochial authorities, showing that 700 bodies per annum would be ample to supply

FIG. 10.—RICHARD PARTRIDGE AND GARIBALDI

the needs of London, and that more than one thousand unclaimed bodies were buried by parish authorities in the metropolis yearly. The suggestions made by the journal were accepted by the Committee.

Warburton accordingly introduced a Bill, the gist of which was that bodies of men and women who died in workhouses or hospitals without being claimed within a certain time of death should be sold for dissection. This Bill was not clear about licensing anatomy schools, nor did it provide for Christian burial of the remains after dissection, but with modifications in these directions it passed the Commons. In the Upper House it was opposed by a group of peers headed by the Archbishop of Canterbury and withdrawn, when a new tragedy—this time in London—called attention to the absolute necessity for the legal regulation of the study of anatomy. An Italian boy, who made his living by exhibiting tame mice in the streets, was enticed by two ruffians to a den in Bethnal Green, where he was murdered and thrust down a well. The murderers with an accomplice set out to dispose of the body, but suspicious circumstances attracted the attention of Mr. Richard Partridge, the demonstrator of anatomy at King's College, to whom it was offered, and the murder came to light. The men were convicted and executed and the Anatomy Act of 1832 was immediately passed. The illustration (Fig. 10) is from a painting in the possession of the Royal College of Surgeons of England, and shows Partridge in attendance upon the illustrious Garibaldi.

MEDICINE IN PARLIAMENT.

THE primary intention of Wakley to enter Parliament was due to the defeat in Parliament of measures for the reform of the medical profession which he considered to be the result of the absence from the legislature of persons who knew the facts. But this intention gathered force from the discovery in so many different places of public abuses where the services of medicine could be employed in remedy or mitigation. And he was confirmed in his resolution by finding that the medical profession drew warmly to his side as week after week subjects of grave general interest were debated with the proper emphasis laid upon the medical aspects. Accordingly he decided to stand at the first general election after the great Reform Bill for the newly constituted borough of Finsbury.

THOMAS WAKLEY AS PUBLIC MAN.

At this point the story of THE LANCET becomes again very much the story of its founder. In 1831 the borough of Finsbury came into existence and Wakley was now resident in Bedford-square, situated almost in the centre of the enormous new constituency, estimated at 330,000 voters. It included six large parishes, five "liberties," Lincoln's Inn, Gray's Inn, and those parts of the parishes of St. Sepulchre and St. Andrew's, Holborn, and of Furnival's Inn and Staple Inn respectively, which were without the Liberty of the City of London.

Wakley had become favourably known to many neighbours. His treatment of public affairs in THE LANCET commended itself to progressives, and his speeches on parochial and municipal matters were business-like. He was able to support his views not only in THE LANCET, but by valuable assistance from friends in the lay press. His desire, therefore, to transfer his work for placing the status of the medical profession upon a sounder foundation to the House of Commons was singularly well met when an important group of Finsbury electors invited him to become their representative. Over and over again, in war against the constitutional authorities of the professional world, in conflicts with the Royal College of Surgeons of England, and in attempts to break down the barriers of secrecy erected by the administrators of the hospitals, he had felt the need for a strong voice within Parliament. He desired to represent the interests of his profession in Parliament and to press there for reform in medical politics, and he desired also to initiate or take part in departures for the sanitary improvement and physical and moral well-being of the population, whose necessity he had been showing week by week. He was not trying to be a Member for Medicine, but, quite literally, a Member for THE LANCET, as certain public causes were being epitomised and championed in its pages. He saw, as we are seeing to-day, that a period of popular unrest would bring into the House of Commons the legitimate discussion of many medical questions, but though his own aim in desiring to enter the House was to further the cause of medical reform and be an expert witness ready to hand whenever points arose in the deliberations of the House where experience in medical matters would be serviceable, he conformed to the views expressed in THE LANCET that no such electoral cry as "justice for doctors" ought to secure him a seat. He came forward for Finsbury at the first election after the Reform Bill as an advocate of advanced reform principles, as a supporter of all claims for the amelioration of the condition of the people, and in particular as the enemy of Protectionist tariffs on the nation's daily food—a sort of general Radical programme infused with medical knowledge. He was not immediately successful, taking only fourth place among five candidates at the first election which he contested. This was at the end of 1832. Some 18 months later one of the sitting Members became Governor of Bombay, when Wakley contested the seat at the by-election. His decision to do so was made suddenly and his figures which were growing significant, represented only one day's votes. Seven months later a general election followed, when at the third attempt he was duly elected, turning out one of the sitting Members.

THOMAS WAKLEY, M.P.

The first occasion on which Wakley used his seat in Parliament to advance the medical profession was during the debates on a County Coroners Bill, and that occasion showed very well the political power which in those times it was possible for a medical paper to exercise. Many of the actual situations dealt with in the County Coroners Bill had been stated for years in THE LANCET, and when at last the Bill was presented to Parliament it was rejected by a House doubly enlightened, first by Wakley's speeches and writings, secondly by articles which had received wide notice and had been reprinted from THE LANCET, and thirdly by a report on medical education which had been presented to the House about the same time. The Bill, as it stood, did no justice to doctors ; their help, where sought, was not to be rewarded. This report came directly from the columns of THE LANCET, and was an attempt to find a constitutional remedy for the many undoubted abuses that were rife in medical training.

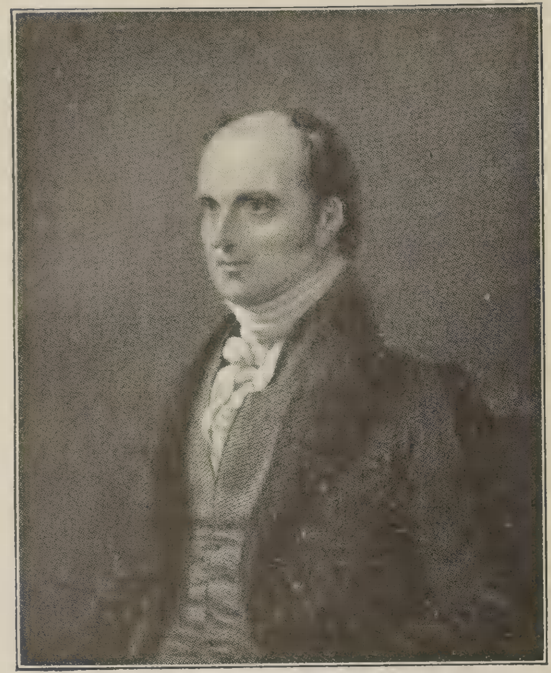


FIG. 11.—HENRY WARBURTON.

Henry Warburton (Fig. 11) an Etonian, a wrangler, and a merchant, was a considerable figure in the House, and may be regarded as a representative philosophical radical. He had moved for a Committee of Inquiry on the subject, when Wakley had not a seat in the House, but without THE LANCET the unanimous agreement of Parliament would not have been obtained for its appointment. It was THE LANCET's ever-recurring and ever-varying revelations of the anomalies present in the system of medical education, persisted in for over a decade, uncontroverted and practically uncontrovertible, which finally bore fruit. In fact, Warburton's Committee was the result of the agitation in THE LANCET, which was supported manfully from without by the public press. The exclusiveness of the Royal College of Physicians of London, the tyranny of the Royal College of Surgeons of England, the pettifogging tactics of the Society of Apothecaries, these were weekly themes, and not bad samples of the weekly phraseology, and so pungently were they treated and with such disregard for the position or importance of the figure-heads in the various corporations, that everyone read the articles. They possessed the piquancy of their insolence and compelled attention from those quite innocent of any desire to see justice done to the medical profession. So that when Warburton asked the House to appoint the Committee, he appealed to an alert assembly wherein there was already a general feeling that some such inquiry ought to be made. He obtained what he wanted immediately. Wakley was personally responsible for Warburton's Committee, inasmuch as it was he who showed Warburton how to secure the evidence and what to look for.

THE GERM OF MEDICAL REGISTRATION.

THE LANCET had dissected the charters of all three of the London corporations, and had indicated what each body could do by law and what each body could not do by law, as well as what each body had taken upon itself to do by custom. Wakley knew where the law had been evaded, where it had been broken, and where it had been stretched, and in all those practices he knew when the result bore hardly upon the student and on the working of medical education. All this knowledge he placed unreservedly at Warburton's disposal, and its possession enabled that reformer to act with confidence and to steer his Committee with discretion.

The rulers in medicine were the men who had acquired a recognised university degree and, subsequently to graduating, had been elected to the Fellowship of the Royal College of Physicians of London. The Charter of this body was granted by Henry VIII. for the advancement of medical

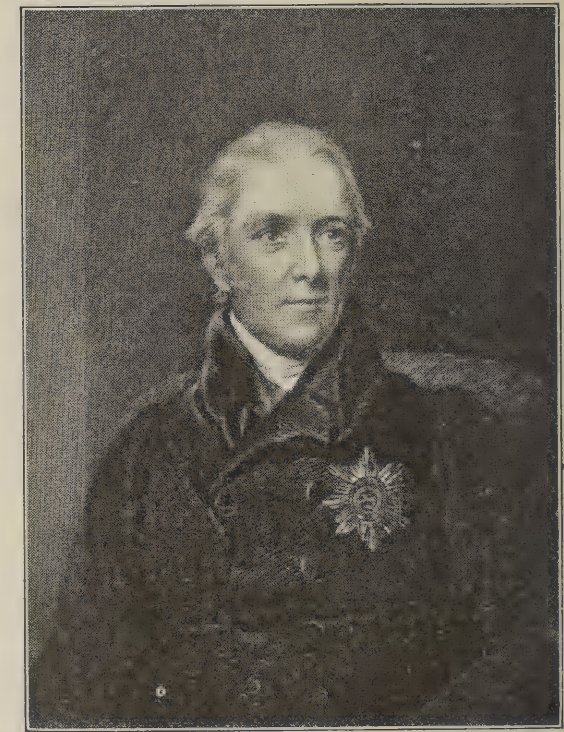


FIG. 12.—SIR HENRY HALFORD.

science and for the protection of the public "against the temerity of wicked men and practice of the ignorant," but time had imported into it restrictions and disabilities uncontemplated by the monarch or his advisers. The College was divided into Fellows, Members and Licentiates. The Licentiates paid fees to obtain a licence to practise within seven miles of the metropolis, but the College had little or no power to maintain the sad monopoly thus sold to them. The Fellows, frequently chosen it would seem with disregard for professional merit, had passed regulations for keeping their body select which were recognised by all as obsolete. No physician could be admitted as a Fellow unless he had graduated at Oxford or Cambridge, or had been admitted to a degree *ad eundem* at one or other of the ancient universities. This restriction carried another with it, for the graduates of Oxford and Cambridge were obliged at that time to be members of the Established Church of England, whence it followed that no dissenter could be a Fellow of the College of Physicians. The College also recognised for purposes of Fellowship those gentlemen who were privileged to call themselves doctors of medicine by direct licence from the Archbishop of Canterbury—M.D. Lambeth, and always called in THE LANCET "Divine Doctors." This was a very small class indeed, but it happened that at this very date one of them was the well-known obstetric physician, Sir Charles Mansfield Clarke. In 1823 the College consisted of 88 Fellows and 216 Members, and certain licensees, and, as will be seen from the figures, did not play a sufficient part in general medical politics to come much under the notice of medical journalism. The references to it in THE LANCET chiefly take the form of criticism of the courtier and physician, Sir Henry Halford, who occupied the Presidential Chair for 42 years (Fig. 12).

The position of affairs in the Royal College of Surgeons of England has been sufficiently indicated by the description of the agitation against its constitution, but it should be pointed out that the practice of midwifery and the dispensing of drugs were considered by the authorities of the College to mark the difference between the "pure surgeon"—to use the phraseology of the day—and the general practitioner. Out of this situation had arisen the Apothecaries Act of 1815, by which the Licentiate of the Society of Apothecaries obtained a definite position as a practitioner of medicine, while his governing body claimed for him a monopoly in dispensing. The Apothecaries Act had as its laudable object the prevention of prescribing and dispensing by unqualified persons, and secured its passage as a measure for the restriction of quackery, but it created incidentally a class of practitioner which could not easily be moved to call for reform. The Act, combined with the apathy of the Royal Colleges in the matter, led to the situation that many members of the medical profession in London and the provinces made no attempt to gain any other diploma than the L.S.A., and consequently were not personally interested in the great plans for reform which were just beginning to take definite shape.

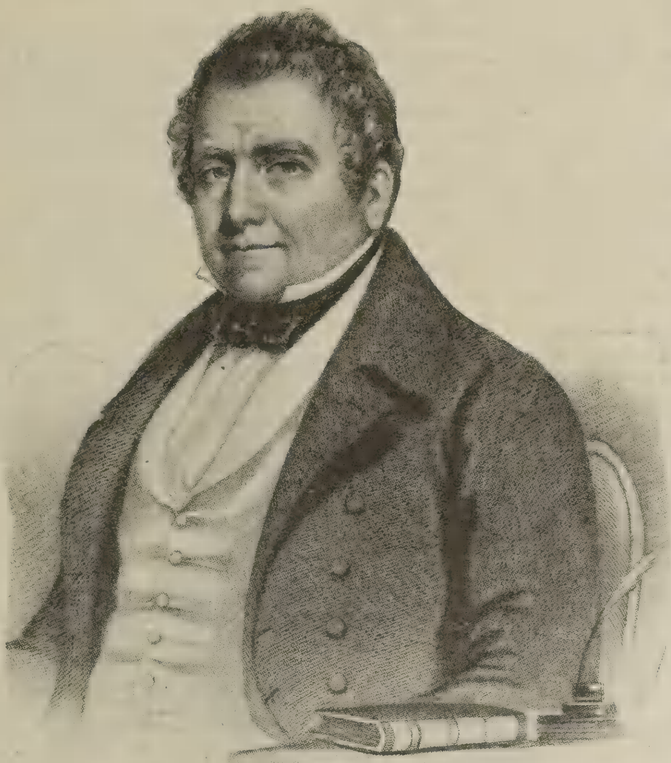


FIG. 13.—JOSEPH HUME.

WARBURTON'S FAMOUS COMMITTEE.

When in 1834 Warburton moved for his Parliamentary Committee of Inquiry into the state of the medical profession, Joseph Hume supported him, holding up to ridicule the anomalies of the Apothecaries Act as affording proof of the necessity for someone to be present in Parliament to interpret medical matters to the legislature. The motion was agreed to without a division and an exceptionally strong committee was appointed. Warburton was chairman and was supported by, among others, Lord Howick (eldest son of Earl Grey, the Prime Minister and introducer of the Reform Bill), Mr. J. Abercromby (elected Speaker of the House of Commons in the following year), Mr. Halford (son of Sir Henry Halford, the long-established President of the Royal College of Physicians of London), Daniel O'Connell, Mr. Spring Rice (afterwards Chancellor of the Exchequer and Lord Monteagle), Joseph Hume, Lord Oxmantown (afterwards Earl of Rosse of telescope fame), and Sir Robert Peel.

Joseph Hume (Fig. 13), a political power in the House of Commons almost since his election for Weymouth in 1812, was later and for many years Member for Aberdeen, then one of the Members for Middlesex, and at the time of his death in 1855 was Member for Montrose. He was the oldest of a remarkable group of political reformers. He was the mover of the repeal of the corn laws, and an authority on all subjects of public expenditure. His deep interest in medical questions was due to the fact that he was educated as a medical man and entered professional life as a surgeon in the service of the East India Company. His rapid acquisition of languages and his organising qualities led to his appointment to important posts in India, so that he was able to return to England while still a young man with a considerable competency as well as a high reputation. If Wakley drafted the first Bill for the reform of the medical profession, it would not have received the immediate attention that it did, had it not been supported by men like Henry Warburton and Joseph Hume.

The Committee was appointed to take evidence on the following important and diverse subjects: Treatment of parochial poor; farming of sick poor; treatment in institutions supported by voluntary, life, and annual subscriptions; mode of appointing officers of such; appointments to gaols, asylums, and similar institutions; regulations of private lunatic asylums; the proper qualifications for masters in lunacy; the state of medical practice generally and its supposed effect on the public health; the practices of unqualified persons and quacks as regards public health and reputation of the profession; the public sale of secret remedies; the revenues of endowed institutions and the numbers of patients treated in them and the state of those patients; the mode of appointment of Navy and Army medical officers; the number of students attached to "chartered" hospitals and fees paid by them; the qualifications and legal rights of Fellows and Licentiates of the Royal College of Physicians and Members of the Royal College of Surgeons and of Licentiates of the Apothecaries' Company, the fees charged at the foregoing institutions and the manner in which such funds were appropriated; the system of medical apprenticeship; the status of chemists in regard to dispensing; the actual amount of wealth in possession of each of the chartered medical institutions; and the appointment of medical professors and court examiners at both the corporations and the universities.

The following were among some of the witnesses called: Cæsar Hawkins, Sir Henry Halford, James Copland, editor of *The London Medical Repository*, John Elliotson, the famous physician, later so damaged by dabbling in mesmerism, James Johnson, editor of the *Medico-Chirurgical Review*, and J. G. Guthrie (Fig. 14), three times President of the Royal College of Surgeons of England, Sir Astley Cooper, Sir Charles Bell, the famous anatomist and lecturer at the Great Windmill-street School, James Wardrop, Benjamin Travers, Benjamin Brodie, Richard Grainger, Joseph Carpue, William Lawrence, and Joseph Henry Green. The Apothecaries Company sent six special witnesses, and most of the private teachers, as well as Carpue and Grainger, had an opportunity of addressing the Committee. Prof. Macartney came from Dublin, William Hey, junior, of Leeds, and John Green Crosse, of Norwich, represented provincial surgery worthily, Profs. Christison, Allison, Abercromby, Poole Thomson, and Maclagan were present from Edinburgh. Glasgow, Aberdeen, and St. Andrews also sent witnesses.

All the evidence of these experts was printed in THE LANCET, explained and copiously annotated, so that both the House and the medical profession had a chance of learning the real need that existed for reform, not only from persons interested in altering the existent and corrupt state of affairs, but out of the mouths of those very heads of the profession whose rule had been so bitterly attacked by THE LANCET and whose rejoinder had been an invariable and stiff-necked assertion that things were very well as they were, and that the disaffected persons were either malicious malcontents striving to be important or their hoodwinked followers.

Wakley for ten years had made certain statements in THE LANCET. Now was the hour of his triumph, for witness after witness willingly or unwillingly confirmed these statements and made it clear to the country that medical reform was really required upon the very lines indicated by the journal which was by solemn agreement on the part of the London surgeons and teachers condemned as hopelessly wrong-headed and prejudiced. The country during the sitting of this Committee was no longer listening to THE LANCET, but to all sorts and conditions of expert testimony to the accuracy of the paper. Guthrie, for example, speaking on behalf of the Royal College of Surgeons, of which body he had been elected President for the first time in 1833, said that he considered the process by which the 20 existing members of the Council, or governing body, elected the twenty-first man to their body was an absurd plan, and that any other would be most acceptable. Immediately afterwards he added that no other plan would be satisfactory. He thought that surgeons should not dispense their medicine or practise midwifery, as anyone who gave time to such trivialities would have none left in which to acquire the principles of "pure" surgery; but he admitted that while only the non-dispensers could be chosen on the Council the power would be absolutely in the hands of 200 "pure" surgeons to govern 8000 persons, presumably as well educated as themselves—viz., the Members. He defended the system by which the ten senior men of the 21 councillors were examiners in spite of the fact that councillors were chosen for life, and that some of the senior men would therefore presumably be past their work. And he spoke well of the high rate of fees exacted from the London student. His evidence was printed at length in THE LANCET, much to his disgust, and proved in the clearest possible way that THE LANCET had not exaggerated during the past ten years when it described the Council of the College as "a self-perpetuating junto" and its educational scheme as useless, giving as the reasons, first, that pharmacy and midwifery were not included in it, and secondly, that the examiners were not fit and proper persons. If these facts had been elicited before the Committee from Scottish or Irish teachers, jealous of certain of the advantages enjoyed by the London corporations, or if they had been insinuated by Grainger and Carpue, sore at the greedy opposition offered by the College professors to all private tutorial enterprise, or if they had been advanced by Wakley himself, a known foe to the English College, the public might have looked with suspicion on the evidence as tainted. But Guthrie was speaking for the College—as the President of the College, in fact—in favour of keeping things as they were, and he satisfactorily convinced the Committee of the urgent need of reform.

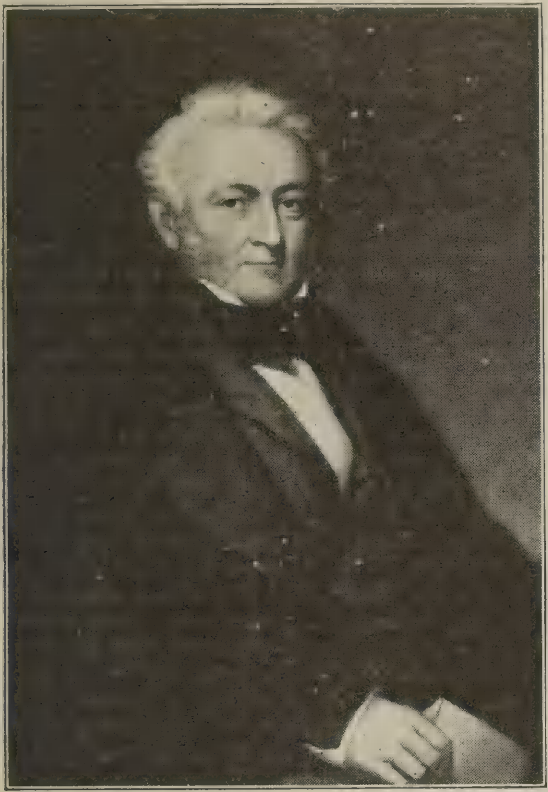


FIG. 14.—J. G. GUTHRIE.

It has been necessary to go back in the story to explain how useful the revelations in THE LANCET had been to the House of Commons. It was in a House in full possession of such evidence as this, taken before a Parliamentary Committee, that Wakley criticised Mr. Cripps's County Coroners Bill from a medical aspect. The House was prepared to believe that in matters of medical reform the honourable Member knew what he was talking about. He was listened to with attention and secured the approval of his fellow legislators for several amendments, chief among which was that the medical witness should be treated as an expert and should be paid at inquests one guinea for his attendance and another for making a post-mortem examination if directed to do so by the court. The Bill was afterwards rejected as a whole, but Wakley's prompt and successful employment of the first opportunity that had presented itself to him to watch over the interests of the medical profession in Parliament did not go without recognition at the time, while it led to practical results in the immediate future. He was publicly thanked by several medical associations. He was also begged to renew his endeavours in the next session of Parliament to obtain adequate remuneration for medical witnesses in the coroners' courts. Three months later the Bill became law.

The work of THE LANCET was now bearing fruit. Some of the abuses revealed in every direction were being met, and the feeling was growing that a general measure of reform was called for.

THE FIRST MEDICAL REFORM BILL.

In 1846 Wakley, having been elected for the fourth time Member of Parliament for Finsbury, brought in a Bill for amending the law relating to the practice of medicine in Great Britain and Ireland, founded on his experience gained as an editor. He had collected round him first all the men who had grievances in the profession, then a group of publicists who saw in those grievances a reflection of much in general affairs that constituted abuses, and lastly, many leaders of the medical profession who were convinced, sometimes unwillingly, of the need for reform. This Bill was Wakley's greatest Parliamentary work, and its indirect results to the medical profession were of incalculable good. Direct results it had not, for it never became law, but it led to the appointment of a select committee of sound, shrewd, important men whose deliberations resulted in the Medical Act of 1858. That Act fell short of the ideals put forward by many writers in THE LANCET, and endorsed by editorial views in the paper; but while it may be admitted that those views were more than occasionally visionary, and would certainly have much impeded the course of legislation by the opposition with which they would have been met, it may be recalled that future amendments of the 1858 Act have turned some of them into law.

Wakley's Bill was short and exceedingly clear, and the gist of it was to ensure that there should be accurate registration of the whole profession with strong penal powers capable of being set in motion against pretenders. It was, in fact, a Bill against quacks, but it was a measure for the protection of the public, and not for conferring undue privileges upon medical practitioners. It provided for the appointment of a registrar for each of the three divisions of the United Kingdom. It specified that his duties were to make, within 30 days of the passing of the Act, a list of all the properly qualified members of the medical profession resident in his division of the United Kingdom, whether by degree, diploma, certificate, or licence, and to these lists there were to be added, as fit subjects for registration, all persons who had been in actual practice as apothecaries since 1815 and all surgeons and assistant surgeons of the Navy, Army, or Honourable East India Company. In accordance with such official lists, which were to be entitled the Medical Registers for England, Scotland, and Ireland, respectively, certificates were to be issued annually to all the names included at a fee of 5*s*. It may be noted that some 50 years later, when the pecuniary position of the General Medical Council was the subject of some anxiety, exactly this way of obtaining an annual income was proposed. Every person, thus duly registered, was to be entitled to practise in that division of the United Kingdom where his certificate was issued, and to charge for visits and attendance, and to recover such charges, as far as they were reasonable, in any court of law. He was to be exempt from serving on juries. None but registered medical practitioners were to be so privileged, and clauses were provided for the summary punishment of unregistered practitioners, whether detected practising without a qualification or with a qualification obtained by irregular means, while it was also made penal falsely to pretend to possess a qualification. The recovery of the penalties was simple and swift. The purification of the register—that is to say, the honour of the profession—was to be left in the hands of the various universities or corporations whose graduates or diplomates composed the profession. The three registrars were merely bound to register persons who possessed certain qualifications and who complied with the regulations by proving their ownership of the same and paying their fees. A name once on the register could only be removed by the authorisation of the body from which its owner derived qualification. The professional crimes which, if proved, warranted such authorisation were specified as "conduct calculated to bring scandal and odium on the profession by publishing indecent advertisements or pamphlets or immoral or obscene prints or books, . . . or any other disgraceful and unprofessional behaviour." The names of the convicted could be erased by the registrars. It will be seen that the penal clauses were open to the curious criticism that they proposed to confer on the very bodies whose irresponsibility to their constituencies were in question arbitrary power of a terrible sort. Wakley and others by name, and all the editorial staff of THE LANCET by implication, had been accused of bringing odium on the medical profession and of using indecent language. Many of them were in the Editor's case of deriving their professional status from the body most bitterly attacked. The Council of the Royal College of Surgeons of England, under Wakley's Bill, could have degraded these men, apparently with no power of appeal, to the position of quacks.

With regard to medical education, Wakley saw that a Bill which proposed "to distinguish between legally qualified physicians, surgeons, and apothecaries and mere pretenders to a knowledge of medicine and surgery," as the preamble bluntly put it, must enact that proper tests should be applied to candidates for a position on the register, lest the distinction between those included in and those excluded from the official lists should be one without a difference. After repealing the enactment establishing apprenticeship to an apothecary as an educational curriculum, the Bill set out a scheme of uniformity of education, qualification, and fees throughout the Kingdom. No details were suggested, the proposer knowing that the various views of the numerous bodies granting medical qualifications would have to be heard on the subject; but the principle of one portal to the medical profession, by which all practitioners were placed upon the same level at the commencement of their careers, was strongly insisted upon. In many future discussions on medical education the simplicity of the scheme of a State examination has won adherents for it, but the difficulties that would be introduced by its adoption have now become generally apparent.

THE LANCET scheme for medical reform led to the Act under which the General Council of Medical Education and Registration was created, and Wakley's efforts to raise the status of the medical profession in THE LANCET were during the intervening period devoted to the support of the principles laid down in his Bill. The majority of medical men, especially the better class of practitioners, saw in the measure an immense raising of their standard, but those of the consulting class were not ready with their support. They were not pressed upon by the unfair competition of quackery to anything like the same extent, and it was felt that their support would have been wanting at the critical moment. Anyhow, in spite of the popularity of the measure with the class whom it was designed to benefit, the Bill was not adopted by the Government, and Wakley accepted the suggestion that a Select Committee of the House should inquire into the subject.

Wakley's Parliamentary activities, it can be understood, helped both his work in Parliament and the profession of medicine, while the information supplied by the medical profession to THE LANCET helped him and his colleagues alike. But while the pages of the paper were thus fiercely political it would have availed Wakley little if he had not been at the same time publishing first-class scientific material. Neither natural zest for sensation nor abundant sympathy with the reforming spirit would have made THE LANCET a general success with the profession if the educational side of the paper had been neglected. Consultation of the issues of the journal during these years, up till 1850 or so, show how steadily the intention was maintained to advance the knowledge of medicine by publishing every week the best sort of medical information while abating nothing in the vigour of political articles, and, at any rate till the close of the indicated period, abating but little in the personal acrimony of the dialectics.

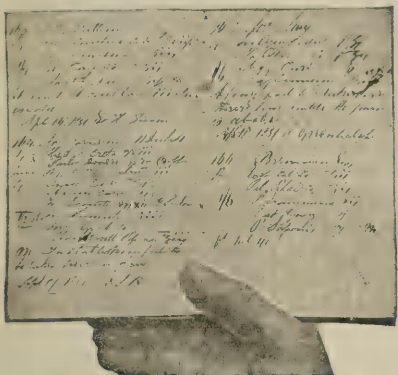
In support of the statement that the pages of the paper supplied the medical practitioners of the day with the latest scientific information, we may mention examples, sometimes sought for in the indices but far more often hit upon by chance or chosen at random, of outstanding communications dealing with the scientific side of medicine and with important relations between medicine and the public.

THE HOVSE *of* MARTINDALE

A FEW REMINISCENCES

Fifty Years of Progreſs—1873-1923

No, there was no need to advertiſe in thoſe days. The work was doubtleſs ſufficient for the day, and for the "apothecary" of the times. Nowadays the work is poſſibly a thouſand times as great, but one wants more work—hence this advertiſement.



Here is a little note book, meaſuring ſome eight inches by four inches. The title page, written in an old-faſhioned hand-writing, indicates "Preſcription Book, 1850, Nos. 1-500." One handles the little tome with a degree of reverence. It was ſtarted by our predeceſſors. There is a pencil note, "W.M. entered May 23rd, 1873." Then began, if we may ſay ſo, a buſineſs now known throughout the world; a Houſe always following the trend of ſcientific medical treatment. It would be impoſſible adequately to review its growth in theſe few brief remarks.

We are not in the habit of boaſting, but we ſay in all ſincerity, that there has not been an important drug or chemical, or a method of treatment, attracting any attention during the laſt half-century, with which the Houſe of Martindale has not been in ſome meaſure connected.

Cocaine

Cocaine, a "bête noire" of the medical man to-day, was introduced to the Medical Profeſſion by the late W. Martindale. The little book, "Coca and Cocaine," is a claſſic. To dip into its pages is to realize the importance of the diſcovery and to recall that even the relatively unciviliſed Mexican Indians, in all probability, have never uſed Coca for hideous malpractices: they uſe it for its marvellous ſtaying-powers, and "civiliſed" ſuperman of to-day is the evil-doer who has brought this, one might ſay divine, drug into evil aſſociations.

Jaborandi

It is perhaps not known to the reader that the powerful ſudorific properties of Jaborandi were the ſubject of inveſtigation by the founder of this buſineſs. He nearly loſt his life while determining the doſe and activity of the drug. Sidney Ringer pulled him through.

Voſodilators

A Fenian Outrage!

It is in the field of the vaſodilators, notably under the guidance of Sir Lauder Brunton, that much early reſearch work of the Houſe of Martindale, was conducted. There is the tale of a young German, who was in our laboratories prior to the war. He came over to learn (amongſt other things!) the language. The far-famed "N.G. Tablets *Martindale*" were in proceſs of manufacture; the young man picked up and ate a piece of the chocolate "maſs" (1/100 grain of Nitroglycerin in $2\frac{1}{2}$ grains) the ſize of his thumb, thinking it to be merely ſweetmeat. He was quickly informed by the manager of the laboratory of his miſtake. He danced round the laboratory, ſhouting, "Ach mein Gott! Ich ſterbe!!"—perhaps he did later! The vaſodilator effect of the exploſive was ſufficiently tranſient to allay immediate qualms. Nitroglycerin, in tablet form, through the auſpices of the parent pharmaciſt, had been made official in the Britiſh Pharmacopœia in 1885.

Boric Acid Ointment

Going back to the old days, our ſtory would not be complete without mentioning that hallowed name, Liſter. Few, perhaps, are aware that the houſehold remedy, Boric Acid Ointment, was deviſed by W. Martindale, at 10, New Cavendiſh Street, for Lord Liſter, the greateſt human benefactor of mankind.

Cyanide Gauze

Again, apart from thiſ relatively weak antiſeptic, W. Martindale ſuggeſted to Lord Liſter the uſe of Mercuro-Zinc Cyanide to impregnate gauze, and "Cyanide Gauze" became known all over the world.

Amyl Nitrite Sterules

The idea of ſealing that volatile remedy, Amyl Nitrite, into "Sterules" was another of thoſe brilliant inſpirations of the man who laid the foundation of this buſineſs. Amyl Nitrite "Sterules" have probably ſaved countleſs lives. We have examined Amyl Nitrite contained in a "Sterule" twenty years after its manufacture and have found it to be of almoſt its original ſtrength and purity. Amyl Nitrite "Sterules" are exported to every foreign country.

It may be 'à propos' to dwell briefly on more recent times.

Radium

The firm took an active intereſt in the therapeutic uſe of Radium from the earlieſt account of its diſcovery. We ſupplied the firſt tubes of Radium Bromide to a well-known X-Ray ſpecialiſt for medical uſe. The moſt diverſe forms of applicators have been produced from time to time.

Organic Arſenic

An elaborate paper on experiments and original reſearch was communicated to the International Congreſs of Applied Chemiſtry, in London in 1909, bringing knowledge up to the Arſenobenzol period.

Lactic Acid Bacilli

A well-known therapeutiſt and ſpecialiſt in tropical diſeaſes walked into the pharmacy in 1907 and aſked us to procure a ſupply of Profeſſor Metchnikoff's remedy. He was the firſt here to uſe the Lactic Acid Bacillus to combat abnormal putrefactive bacteria in the inteſtines; it was not long before the firm produced "Trilactine."

Synthetic Chemicals and the War

The war altered the aſpect of many things in the realm of organic chemiſtry. There dawned the poſſibility of manufacturing organic chemicals, previouſly made in Germany, at a profit, or, at leaſt, to do ſo as a matter of patriotiſm. The preſent writer, with the help of other Engliſhmen, worked out details of manufacturing proceſſes. Information acquired was given freely to ſcientific workers and, indeed, to our competitors. *En paſſant*, the pure humbug of certain German patent ſpecifications was brought to light.

We could go on telling the tale of "No. 10" by the hour. Many were the urgent orders that were executed in thoſe dark unprepared days eight or nine years ago.

Urgent Orders

A ſcientific worker wanted 8,000 broth tubes filled in a day. It could be done and was done. We ſent to the timber merchants for the wood, and to the galvanized metal people for gauze to make the crates to hold the tubes during the ſterilizing proceſs. The order was executed in the time at our diſpoſal, giving an average of 1,000 tubes an hour!

Aſpirinates

Aſpirin was firſt uſed medicinally in 1899. The value of its advantage over the exiſting Salicylates showed that Aſpirin was a drug that had *come to ſtay!* And yet it could be improved upon. The firm ſtarted to make ſoluble ſalts of Aſpirin. The ſequence, Tylcalſin→Tyllithin→Tylnatrin→Magiſal, was a natural one to thoſe intereſted in the pharmacology of drugs.

Can Aſpirin be given intravenouſly? No, but Tylcalſin and Tylnatrin can, and have been, with ſucceſs. They are direct bactericides for combating rheumatic affections. Is it not probable that the intravenous uſe of drugs will be *the* method of adminiſtration of the future?

Sedaſprin and Aſpriodine

Within the laſt few months the proceſſes of manufacture of Sedaſprin and Aſpriodine have been worked out at N.C.S. They contain as *definite ſtable* compounds, reſpectively, 30·86 per cent. Bromine and 41·47 per cent. Iodine. The reſt, in each inſtance, is Aſpirin. The value of the combination of the active halogens is clear to the pharmacologiſt. They are neither of them affected by phyſiological acid and they are ſplit up by the alkalinity of the digeſtive tract. We have another member of the Aſpirin ſequence "on the ſtocks"—of this more anon.

Emetine Periodide

Emetine Biſmuth Iodide was ſhown by us to have been advocated on an entirely erroneous theory. It *diſſolves* in phyſiological acid—hence the nauſea it produces, and the fact that it is in general badly tolerated. We worked out Emetine Periodide, $C_{29}H_{40}N_2O_46I$, a ſtable body, containing 38·7 per cent. Emetine and 61·3 per cent. Iodine. It was highly ſpoken of by the author of an important paper on amoebic dyſentery, read before the Royal Society of Tropical Medicine and Hygiene, in London, in May laſt. "Emetine Periodide was by far the moſt effective, and, at the ſame time, the leaſt toxic of all the Emetine preparations tried."

And of Chaulmoogrates, Colloidal Metals, Strawberry Vitamines, Peptone for immunization in bronchial aſthma, Pituitary preparations, Quinidine, Thyroid Standardized—much might be ſaid if ſpace permitted.

We will conclude with the ſmall conſolation:

"MULTUM ADHUC RESTAT OPERIS, MULTUMQUE RESTABIT, NEC ULLI NATO, POST MILLE SÆCULA PRECLUDETUR OCCASIO ALIQUID ADJICIENDI."—*Seneca.*

W. MARTINDALE, 10, New Cavendish Street, London

PHONES: Langham 2440 & 2441.

WIRES: "Martindale, Chemiſt. Phone, London" (counts as three words).

EIGHTY YEARS AGO.

EARLY CLINICAL COMMUNICATIONS.

THUS we find, ranging these comments roughly in chronological order, clinical lectures by Elliotson, Henry Earle, Charles Bell, Thomas Watson, and notably lectures on medical jurisprudence by John Gordon Smith, which were followed by a series of practical commentaries on Christison's processes for detecting poisons. All these men were prominent at the time, and some of them contributed in the manner indicated by their writings to the permanent advancement of medical science. Elliotson (Fig. 15), physician to University College Hospital, and the dedicatee of "Pendennis," fell into disrepute later, because of his hankering after mysticism, but he was a famous clinician, and erred only by excess of imagination and a certain impatience of the obvious. Henry Earle, nicknamed by Wakley and his followers the Cock-sparrow, was an enlightened and progressive surgeon, and later a very good President of the Royal College of Surgeons of England. Charles Bell is, of course, the famous surgeon who discovered the function of the roots of the spinal nerves, and went from the Middlesex Hospital to occupy the chair of surgery at Edinburgh. "Bell's Paralysis" commemorates his name, while the "Anatomy of Expression," which is often quoted, reminds us of his artistic capacity. The contributions from Sir Thomas Watson, scholar and physician, were not numerous, but their existence should be recorded because his lectures in an expanded form became the most popular text-book on medicine between 1840 and 1876, when Bristowe's Treatise was issued, and to this day their teaching is often of the highest clinical value, while the writing will remain a model for all. Sir Robert Christison, professor of materia medica and forensic medicine in the University of Edinburgh, was the most expert toxicologist of his day, and did much to place his science on a firm foundation.

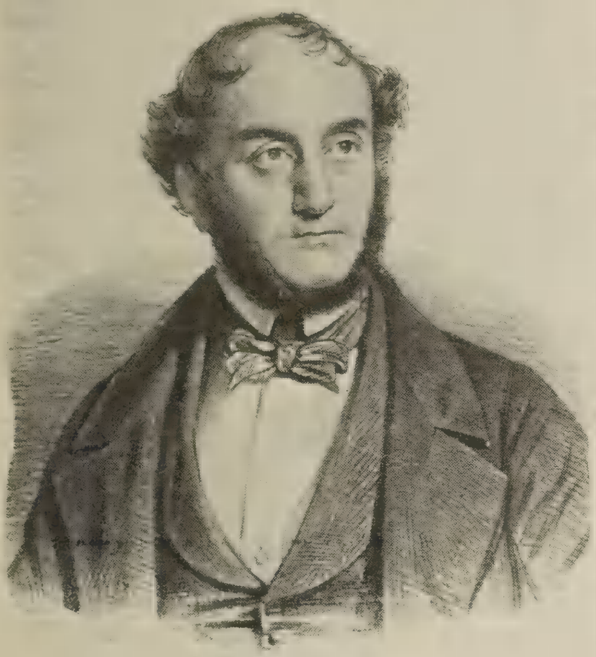


FIG. 15.—JOHN ELLIOTSON.

ENTENTE WITH FRANCE.

A good many of the cases recorded came from French hospitals, a close connexion between THE LANCET and the French medical schools having been instituted about 1830. For many years from the great charitable institutions of Paris there came to the pages of THE LANCET, supplied by the medical officers or translated by English students, short records of interesting cases, until about 60 years ago the first Paris correspondent of the paper was appointed, who was also the first regular foreign correspondent of the journal. In this way THE LANCET got into touch with Orfila, the founder of modern toxicology, who after ten years of work as professor of medical jurisprudence had been nominated Dean of the Faculty of Medicine at Paris. In the pages of THE LANCET there appeared translations of Orfila's work on the detection of poisons, the articles being accompanied by interesting notes of cases where Orfila's evidence had directed juries towards the finding of correct verdicts. Further, several members of the original staff of THE LANCET had done their clinical work in Paris, and when the courses of study at the London hospitals, or the anomalies of English medical education were the subject of discussion, the invariable habit of THE LANCET was to draw comparisons between what happened at the Paris hospitals or at the University of Paris and what prevailed in England. In this way a very close bond was set up between THE LANCET and French practitioners; French medical literature was reviewed in what we should to-day consider a cursory manner, but was none the less creditable to a weekly paper. As a result of this *entente* we find translations of excellent lectures on medical pathology delivered at the University of Paris by

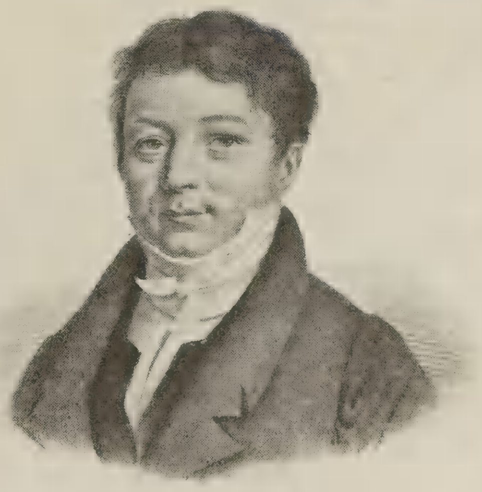


FIG. 16.—FRANÇOIS MAGENDIE.

G. Andral, many of Dupuytren's clinical lectures, and still more notably a long series of lectures by François Magendie (Fig. 16), the great French physiologist. The fame of Magendie may have been overlaid by that of Claude Bernard, but there is no doubt whatever that he was in his day one of the greatest physiologists. His lectures were translated into every language, he made discoveries in anatomy, and was an innovator in laboratory procedure, and the issue of his teaching in English form was both a progressive and useful movement. Dupuytren was the head surgeon at the Hôtel Dieu, a remarkable operator, who went round his wards daily with a crowd of cosmopolitan students at his heels. He was devoted to his profession, and left a considerable portion of the large fortune which he amassed to benefit a chair of anatomy at the École de Médecine.

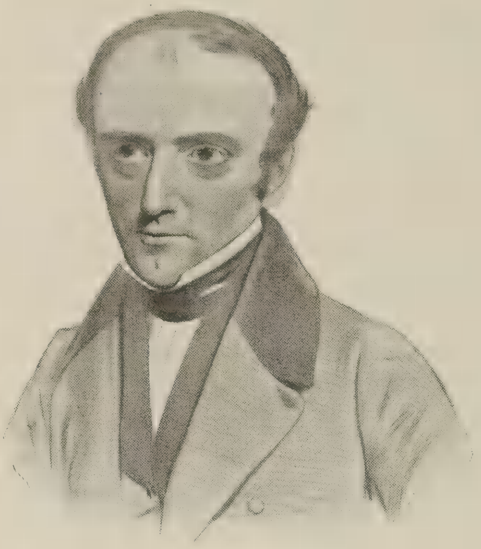


FIG. 17.—ROBERT GRANT.

Mention of Andral makes an allusion necessary to the stress laid upon the subject of phrenology in the early years of THE LANCET. Both at this period and for some years to come this was perfectly natural, although later attempts have failed to correlate the doctrines of phrenology with the observations of modern pathology, and especially with localisation of cerebral function. The action of THE LANCET in booming Gall and Spurzheim was not a very successful piece of prophesy; none the less, those who love to trace among the developments in scientific medicine the activities of the alchemists will always hold the work of these observers and the principles of "cranioscopy" to have some logical connexion with the discoveries of Hughlings Jackson and Ferrier. Phrenology, at any rate during the first 40 years of the past century, had many highly scientific followers as well as some acute scientific critics, and Wakley's immediate supporters belonged to both schools. In Paris, Andral, whose lectures ran serially in THE LANCET for a year or two, and Broussais, whose work was more than occasionally referred to or translated, were immediate disciples of Gall, and favoured the progress of phrenology as a system of psychology without basing their faith upon the popular idea that the relative size of certain contours of the brain both dictated the shape of the external covering and the disposition for mental impulses. Elliotson was found on the romantic side in the controversy, but Bell and Brodie were strongly opposed to it, and considered it impossible to estimate brain development from skull shape.

Alongside these two famous Frenchmen were published in serial form Prof. Robert Grant's (Fig. 17) lectures on comparative anatomy and physiology, and Anthony Todd Thompson's (Fig. 18) lectures on therapeutics. Grant, who had been recently elected Professor of Comparative Anatomy at University College, and who had been elected F.R.S. as a comparatively young man, probably devoted too much time to teaching, so that although he was a companion of Darwin, and corresponded with all the great naturalists of France, Holland, and Germany, his original work hardly justified his popular name of the Cuvier of England, but his lectures in THE LANCET had a very favourable reception. Anthony Todd Thompson was also a professor at University College, his subject being materia medica and therapeutics. His career was a fine example of the development of the general practitioner, for in that capacity he joined the staff of the *London Medical Repository* under Copland. The series of lectures on materia medica and therapeutics in THE LANCET were practically a new shape given to previous work on the subject, and in a still later form became the substratum of the British Pharmacopœia. Thompson was a man of wide learning and practical outlook, and the publication of his lectures advanced the prestige of the paper.

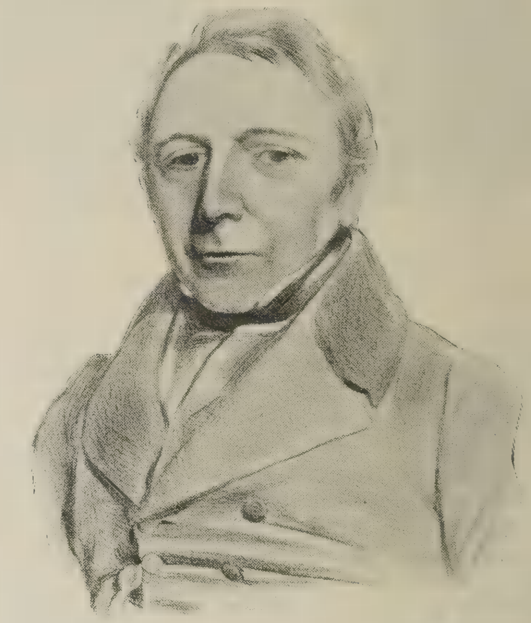


FIG. 18.—ANTHONY TODD THOMPSON.

Other notable clinical lectures which appeared during the period were by Benjamin Brodie (Fig. 19), Charles Bell, J. G. Guthrie, Thomas Wardrop, Benjamin Travers, and Robert Liston (Fig. 20). Their lectures were good examples of the teaching of the day, and their publication show that although the pages of THE LANCET were as critical as ever about hospital administration and the constitution of the corporations, the leaders of those corporations and the principal members of the staffs of those hospitals decided to allow their work to appear in the columns of THE LANCET. It may be thought that they did not so much allow their lectures to appear as that the law courts had made it difficult for them to take up the position that the lectures were their private property; but, as a matter of fact, they were, for the most part, real coöperators in the publication. First, they corrected the abstracts and résumés so as to perfect the words of their own teaching, but secondly, they found two things—that their material position as practitioners gained from the publicity, and that the comparatively novel habit of printing their lectures provided them with excellent material for more extended literary work. This was so in the case of Sir Thomas Watson, and in later cases, for example, in that of Erichsen, the skeleton of whose world-famous text-book appeared as a serial in THE LANCET.

FIG. 19.—SIR BENJAMIN BRODIE.

THE CHOLERA EPIDEMIC OF 1831.

The subject of the greatest interest to the public and medical profession alike during all the period we are now discussing was cholera, which, having made its appearance in Europe by way of Persia and Russia some five or six years previously, spread through the north of Europe, and appeared in the northern parts of England in 1831. For some 15 months the disease prevailed in many of the large cities of Great Britain and Ireland, and the pages of THE LANCET are full of clinical accounts from which much can be learned even at this time as to the onset of the disease. The pathological considerations would not now be taken very seriously, but the attempt to find remedies must command respect. Every conceivable method of combating the disease by internal remedies, vegetable and mineral, by stimulation, by bleeding and depletion, by baths, by friction—all had their advocates. One fact is outstanding, and is so taken for granted that it is hardly ever alluded to—namely, that at a time of natural and deep apprehension the medical profession had done and would do its duty everywhere and anyhow in the face of the raging epidemic. The intimate connexion at the time of THE LANCET with French medical thought was well illustrated by a furious article against the dissemination by Louis Phillipe's Government of official cholera medals, 1000 in number, commemorating personal bravery during the epidemic in France. While the medical profession stood foremost among the proper candidates for such medals, the King's advisers placed upon the official list no hospital *internes*, few officers of public health or of the hospitals, few of those who had really assisted the medical profession, a number of bureaucratic and political personages, sisters of charity, and quacks, among whom is singled out by THE LANCET for special notice a M. Beliol, whose advertisements "to cure the itch, the tetters, and secret diseases are pasted on every wall in Paris." Prof. Magendie, to whom one of these medals was awarded, returned the decoration to the Ministry.

FIG. 20.—ROBERT LISTON.

POPULAR JOURNALISM.

ILLUSTRATED BIOGRAPHIES.

IT is interesting to note that two methods which have over and over again been adopted by lay papers for the popularisation of their contents were hit upon by THE LANCET in the early thirties—namely, the publication of biographies of living persons of distinction or official position, and of open letters to similar persons.

The first series of "medical portraits," as the biographies were called, started in THE LANCET in 1833, and was a ruthless piece of writing. The subject selected was Sir William Blizard, "the testy knight of collegiate scowl and hospital vulgarity." Sir William was terribly old—older than the lithograph here reproduced (Fig. 21) would suggest, and a glance at his portrait on p. 696 will show that he had been a handsome man. It might have been thought that his age entitled him to compassion, but it must be remembered that it was exactly his age, coupled with his positions at the Royal College of Surgeons of England and the London Hospital, which constituted his chief offences. It was part of the general compaign of the paper against the constitution of the College and against the scheme for the education of the medical student that the power had got into the hands of old people, who proceeded to instruct and examine the students without any familiarity with existing facts. Sir William Blizard must have been nearly 90 years of age when his portrait and biography appeared in THE LANCET, and appended to it were notes of his teaching in the wards, which were intended to expose his senility, and which succeeded in so doing. Here is one of the notes :—"Sir William (*turning to a case of diseased testis*): 'When I took this case in I thought it was scirrhus epididymis. What are the diagnostic marks of scirrhus? Well, I will tell you. Its peculiar hardness and a sense of specific gravity. I have blistered this, and I dare say when the blister has healed the man will be quite well.'" The suggestion of THE LANCET was that such teaching was worse than worthless, for it conveyed no accurate information and made the recipient feel that he was the intellectual superior of his instructor. The writer described such teaching as "a sorry spectacle," and devotes a column and a half to indicating that by birth and education nothing better could have been anticipated, and that if at any period in the unfortunate knight's career he had given evidence of higher things he was now too old for more to be expected.

Among the other biographies which follow, and which are all of them very frank and many of them uncomplimentary, there is an excellent one of Sir Charles Bell illustrated by a sketch drawn in the theatre of the College of Surgeons while Bell was lecturing, and there is also a dramatic portrait accompanying some notes on the career of that singular Frenchman, M. Clot. Clot was a Marseillais, and took his degree at Montpellier. He went to Cairo on the invitation of the Pasha of Egypt in 1831. Under the Pasha he organised a system of medical education on European principles at Abouzabel, near Cairo. Here he lectured on anatomy, physiology, and surgery, and added to the buildings a maternity clinic in which "the art of accouchement is taught to negresses and Abyssinian women." Partly because M. Clot was really a competent surgeon and a remarkable man, and partly because the Viceroy or Pasha of Egypt held him in high admiration, he obtained a large practice in Cairo and a more or less European reputation. The accompanying portrait is described in THE LANCET in the modest language of the day as one "possessing great fidelity, the features of the expression of the Bey being delineated with much facility." (Fig. 22.)

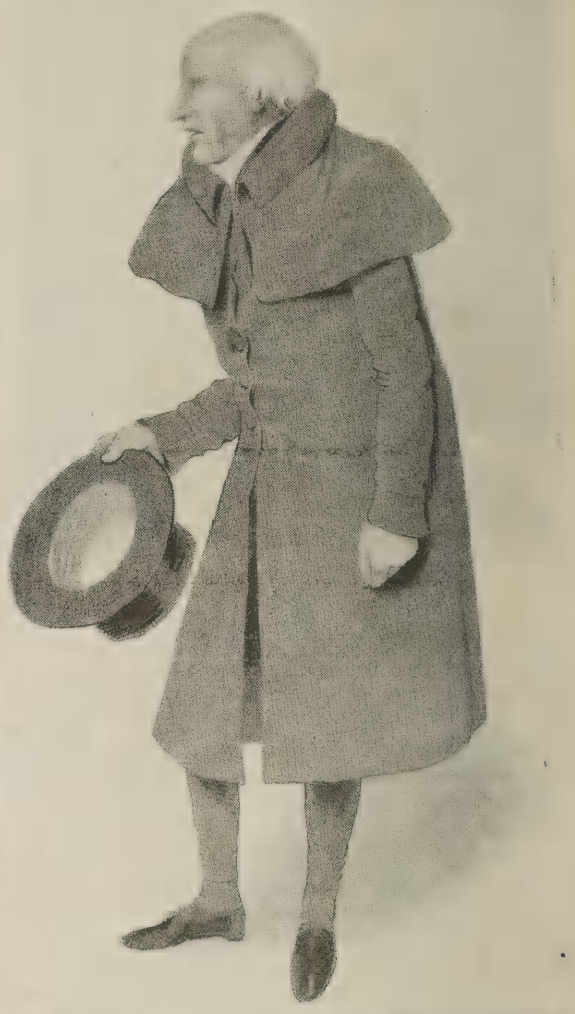


FIG. 21.—SEMI-CARICATURE OF SIR WILLIAM BLIZARD

Other persons to be commemorated were William Lynn and John Elliotson, but the first series of medical portraits was not a long one, and gradually they were discontinued to be reintroduced in a different vein some 15 years later. The biography of Elliotson is appreciative, but that of Lynn is an indictment of the famous lithotomist as a vain and garrulous old man, even while doing justice to his work as anatomist and surgeon.

“INTERCEPTED LETTERS.”

A series of amusing and scurrulous communications, entitled “Intercepted Letters,” enlivened the pages of THE LANCET for some years, beginning almost simultaneously with the illustrated biographies. The idea of writing them has been attributed to Wardrop, and there is some internal evidence that he actually wrote several of them, but Wardrop would only have been following precedent. The opportunity for topical criticism and indiscreet comment offered by such contributions had made them a popular weapon in the hands of provocative journalists, while the code of manners in the reign of William IV. was not that under which we live to-day. The great master along this line, “Junius,” it will be remembered, addressed his victim directly, whereby only one person was attacking and, for the most part, only one person was attacked. The “Intercepted Letters,” as they appeared in THE LANCET, gave greater opportunities, though the concentration was lost, because the correspondence was usually as damaging to the person from whom the letter purported to come as to the person who was described as having received it.

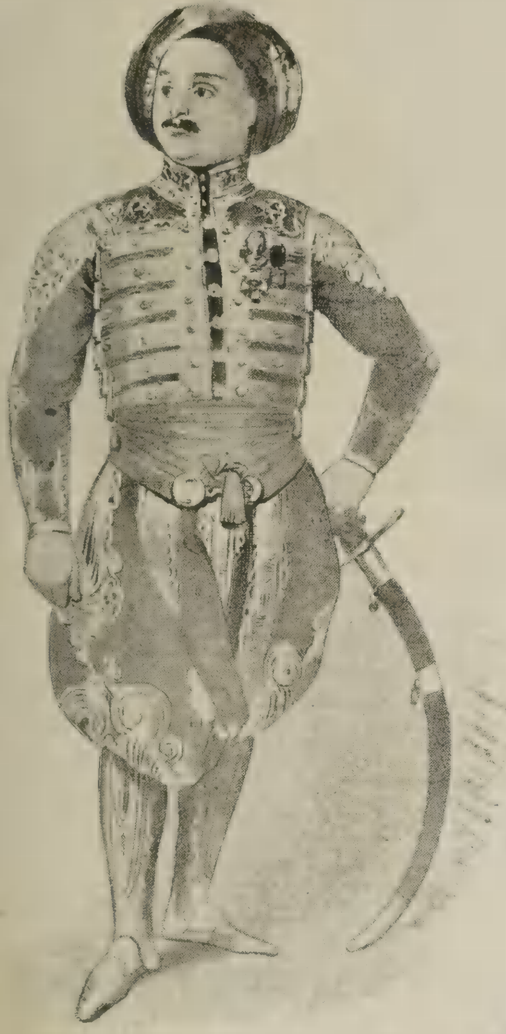


FIG. 22.—SEMI-CARICATURE OF CLOT BEY.

Two examples may be given of these Intercepted Letters. The first is addressed to Sir Benjamin Brodie, at that time becoming a prominent member of the Council of the Royal College of Surgeons of England. It is very long and commences as follows:—

> “It is of first-rate importance that you ride the President of the College with a sharp bit.”

The letter continues:—

> “Pray tell me with your wonted candour if Macleod has applied to you for any more subscriptions. I am so disappointed at the want of anything like talent in his journal that, for myself, I will pay no more. After all, what a world this is. Its events may be a comedy to some, but to most of us, my dear friend, they are a tragedy. I took much pains to aid the *Gazette* at starting, and I distributed hundreds of the prospectuses amongst all sorts of persons, particularly the bishops and top apothecaries. Nay, you may remember that so far did I go as to have one placed in each plate at the first dinner I gave after its publication was announced, and told the surgeons and physicians who did me the honour of eating with me on that occasion, that at last they had a journal which they *could* read, and I hoped they would warmly support it. Yet what good has all this done? Why a reform in the profession seems close at hand, in the teeth of Macleod and his assistants. By the by, I hear that Macleod denies to some people that he any longer edits the journal. Tell him, if he persists in that statement, not to be seen entering the assistant fabricator's house so frequently, since for the sake of secrecy he has removed his papers to that quarter.
>
> I further hear a report that Mr. Travers has shown a disposition to cut us. Gracious Heavens. Who next? Let someone go to Bruton-street and ascertain what is the fact. It can hardly be true. Where the inducement? He would gain no credit on the other side. The revolutionists would not have him at a gift I suspect. So the dear Prince at Kew is going to Berlin. What a sad compliment to the eye-doctors of London. We managed well, I think, to keep Wardrop from being called in, though it would almost have been better to allow that than lose the family altogether for so long a time. Graefe paid the English druggist the compliment of taking much medicine with him for the Prince. A friend of mine told me that he saw a mahogany chest full in the Baron's house at St. James's. I have time to say only how devotedly I am
>
> Yours,
>
> * * * * * * * * * * * *
>
> Leicestershire, Sept. . . . , 1843.
>
> PS.—Can it be *our* Lockley that was examined at the low inquest which I saw reported in the papers to-day? Surely he does not accustom himself to attend such vulgar proceedings when he has seen the case before death. The hospital surgeons never go, though the deceased may have died under their hands. They always send the ward sisters, or the dressers. Has Lockley no apprentice?”

This letter, of course, teems with insults, from its first suggestion that the President of the College of Surgeons was supine, to its last that Fellows of the College of Physicians could have nothing to do with inquests. The letter is signed with five asterisks followed by seven asterisks, the suggestion being that it is written by Sir Henry Halford, President of the Royal College of Physicians, whose position at Court was made the subject of constant and cruel reference. The *Gazette* in question, is Dr. Roderick Macleod's *Medical Gazette*, which at that time was very critical of THE LANCET, as indeed it might well be, seeing that the following open message had just been sent to Macleod in an editorial article. “Enough of this; there are brutes that are not worth the lash of ½*d.* whipcord.” Dr. Macleod was assisted by Halford and others in bringing out his paper with a mission to counteract the disrespectful poison disseminated by Wakley.

The second "Intercepted Letter" is quoted as showing the extraordinary liberty, not to say licence, which characterised the columns of a scientific journal of the day. Here it is made perfectly clear whose letter is supposed to have been intercepted, for it is dated from ——— Hall, Leicestershire, is signed H. H., and the page on which it appears is headed "Sir Henry's Medical Affairs." Sir Henry Halford, whose original name was Vaughan, had taken the name of Halford on succeeding to a Leicestershire property, and the libel is unpardonable :—

> "Dear Dr. Turner,—None but a man endowed with a sentimental mind like your own can enter warmly and feelingly into my present position ; and I do assure you, my dear friend, that the quietude and repose of the country, after all I have gone through—all the mortifications and annoyances I have suffered during the last London season—is quite a balm to my troubled mind. I am indeed glad to get something to occupy me apart from my wonted habits and avocations, and though it may appear ridiculous to you, I do assure you it is true that the little annoyances which are inseparable from the life of a *country squire* do me good. When I am brooding over the downfall of professional legitimacy or the questions of the Parliamentary Committee, I am absolutely not sorry, even if my bailiff comes to tell me that my sheep have sold for less money than they cost six months ago ; or my gamekeeper to say that a hoard of poachers have murdered all the game ; or my groom to announce that my favourite riding horse has broken both his knees. I would say on the principle that guides us on the treatment of diseases—the principle of *revulsion* of *diversion*—that all these things do me good ; and a good practice it is too to put a blister on a ladie's coccygeal region, when she complains much of her head.
>
> I hope you are keeping a sharp look-out after my patients during my absence ; and when I take my next run up to town, the more of them you can get to meet me in Curzon-street the better, as I will remain only one day. Never fail to tell everyone of them that in all my letters I particularly mention *their* names and make many inquiries about the progress of their particular case, and how the last prescription agrees with their constitutions. As I always take care that they consider my knowledge of their constitution minute and comprehensive, it is of importance that you strengthen that notion ; for during an experience of nearly 40 years I have ever found that nothing makes patients less likely to employ another medical attendant than the notion of the ordinary one—knowing their *constitution*. You can easily let anyone suppose that I am obliged to go to Windsor occasionally, as that will appear a good excuse for my being a day in London. The last accounts I received from the Castle were not very cheering. There is, indeed, nothing to be done there in the way of business. The King is wonderfully well ; and in place of stuffing and cramming his stomach with all kinds of trash, and then taking physic and getting me to unload the machine, like his late brother, my kind and ever to be lamented friend George IV., he lives most regularly, moderately, and soberly, and has *no complaints*. It is unfortunate for us, at this moment particularly, that he has a low opinion and such a dislike of physicians. He has abided by a determination which the Duke of ——— told me that he heard him express when he came to the throne, that he 'would be d——d if he would make an apothecary's shop of his guts, as his brother did.' He has a quite sensible surgeon living in the palace, so that if the least things go wrong, if any screw be a little loose, there he is in readiness. That is not right by any means. As to our gracious Queen, my Windsor correspondent writes me word that she has become a convert to the homœopathic system and is now under the guidance of a German doctor who is giving her (I suppose because she is a Queen) only the ten-thousandth part of a grain of some of his nostrums. Her little homœopathic medicine chest with all its little bottles is a nice little toy to amuse her. Lord Howe watches the effects of these wonderful millionth fraction pills, and I have never been nor am I likely ever to be consulted by her.
>
> I have got the periodicals regularly. I need not conceal from you, my worthy friend, that I am grieved and vexed to see extracts of my examination before the Committee printed in The Lancet ; and had I not been taken partly by surprise, and lost my temper somewhat during the examination, I should not have said so much, and attempted to show that the cause of our not making Fellows of the Licentiates was the defective moral character of the Licentiates. I confess it was a sad blunder on my part, to say in public that while we encouraged the Licentiate to practise midwifery, we considered it beneath the dignity of a Fellow to touch such things.
>
> Write to me anything that you hear is going on in Pall Mall, Blackfriars, or Lincoln's Inn Fields. I intend writing to Sir Astley about some vexatious things which I have heard respecting the certificate system. It cannot go on. How do little Benjamin's honours sit upon him ? I long to see *her ladyship*. Is it true that he has got a carriage in imitation of mine ?
>
> Write me everything ; and put your letters under cover to my son, which will save the postage.
>
> Yours faithfully,
>
> H. H."

"Little Benjamin" is Sir Benjamin Brodie, whose small stature is made a subject of frequent reference, for he is generally alluded to as the "little eminent."

Illustrated Biographies : A Second Series.

The second series of biographical sketches commenced with a life of Marshall Hall, to whom The Lancet in its early days owed much. All the great observer's extensive work in chemistry, physiology, hæmatology, and neurology was published in The Lancet as it appeared from the time when he took up his residence in London in 1826. A synopsis of the spinal system in a series of lectures by Marshall Hall provides another good example of famous work which first saw the light in the columns of The Lancet at this epoch. (Fig. 23).

Hall was at this time no longer a young man, for he had graduated in medicine some 40 years earlier, and had made his name both as physiologist and physician in quite other fields before he did his illuminating work on the nervous system. His researches were not appreciated at first at their true value. At the time of his death in 1857 he was engaged in preparing for publication in The Lancet a précis of his life-work, but in essentials that story is written in the columns of the paper to which he was so constant a contributor. In the biography opportunity is taken for an indictment of the Royal Society for the prolonged neglect of Hall's claims, when one cannot but feel that Hall might have been embarrassed by the methods employed. Failing any public or official recognition of Hall's work, the following suggestion was made which is worth quoting in view of the institution of the Order of Merit by the late King Edward VII.

> While the leaders of our armies and navies, our statesmen, our lawyers, our divines, receive the highest honours of the State, the cultivators of science, and especially of medical science, requiring the very highest order of mind, are comparatively neglected, and often forgotten. These things require reform. There ought to be an Order of Merit instituted, to which only the really meritorious should be able to attain. It might be in one class or in different classes, according to professions, &c. This Order of Merit should rank higher than any mere hereditary honour ; the possessor should be entitled to wear a distinctive decoration.

It is interesting that while the scope of the modern and most distinguished Order should have been prophesied in the words "only the really meritorious," the title of the Order should have been exactly indicated 70 years ago.

The next biography is that of Henry Clutterbuck, a contemporary of Lettsom, and therefore nearly 80 years old at the time the memoir was published.

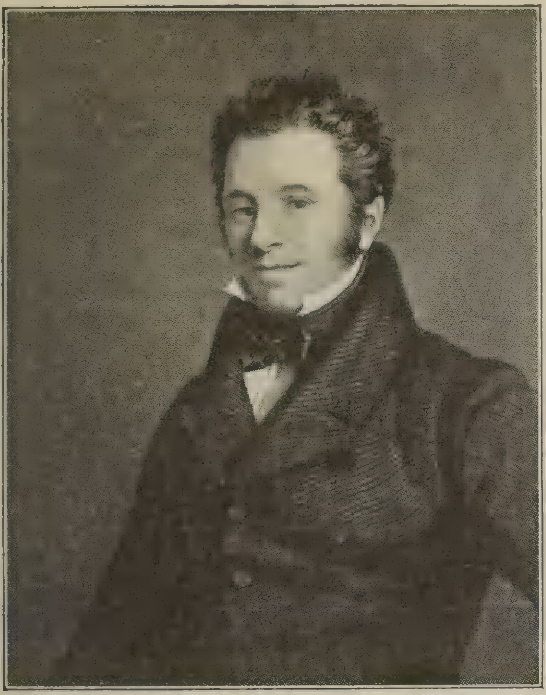


FIG. 23.—MARSHALL HALL.

He was in the forefront of the proceedings of the Medical Society of London, of which he was three times president, but it was his action, none the less, which led to the schism in the Society, resulting in the founding of the Royal Medical and Chirurgical Society, itself the parent of the Royal Society of Medicine.

Another biographical sketch was that of Bransby Blake Cooper, now senior surgeon to Guy's Hospital, in which ample justice is done to Cooper as a surgeon, and particularly as an anatomist. The lurid circumstances which led to a libel action against THE LANCET are only alluded to in these words: "The absence of animosity on the one part, and the kindly feeling on the other, preclude the necessity of dwelling on a subject which must be equally painful to both parties."

An interesting biography is that of Sir James M'Grigor, Director-General of the Medical Department of the Army, in which the ideal of the Army surgeon is placed very high when it is said "his duty is not to treat individual cases of disease, but to deal with the causes and prevention of large classes of disease." A letter from the Duke of Wellington is included, in which the Duke, not a "gusher," states of Sir James M'Grigor "I consider him one of the most industrious, able, and successful public servants I have ever met with."

Short biographies of Sir William Burnett, Director-General of the Naval Medical Service, and Prof. R. E. Grant, professor of comparative anatomy and zoology at University College, London, are among those that follow, and all the character sketches lay stress on the eminence of their subjects. Some correspondence accordingly took place, questioning the discretion of the Editor in publishing eulogies of living men. For the eulogies did not make the rollicking reading which was furnished by the old libels. For the most part the people were too well established in their position to gain any unfair professional advancement by the public notice given to them, but the series, which was intended to include 100 names, was soon dropped. Benjamin Travers, James Sime, Robert Lee, and Sir William Fergusson were among the last, the series actually closing with an interesting biographical sketch of Sir Charles Hastings. (Fig. 24.) The portrait reproduced will be recognised as that which is so familiar to us on the cover of the *British Medical Journal.* Hastings was the founder of the Provincial Medical and Surgical Association, and received in his efforts regular assistance from THE LANCET. He was a practitioner at Worcester, and physician to the hospital, and he published, with the assistance of personal friends, the *Midland Medical and Surgical Reporter,* a quarterly periodical in which he expressed the intention of publishing notes of interesting cases from provincial hospitals, so as to extend, for the benefit of general practitioners, knowledge of disease treated in the institutions. From this movement arose the Provincial Medical and Surgical Association, which held anniversary meetings with such success that in 1840 it was decided to issue a weekly publication, the *Provincial Medical and Surgical Journal.* The Association later became the British Medical Association, and the journal took the name of the

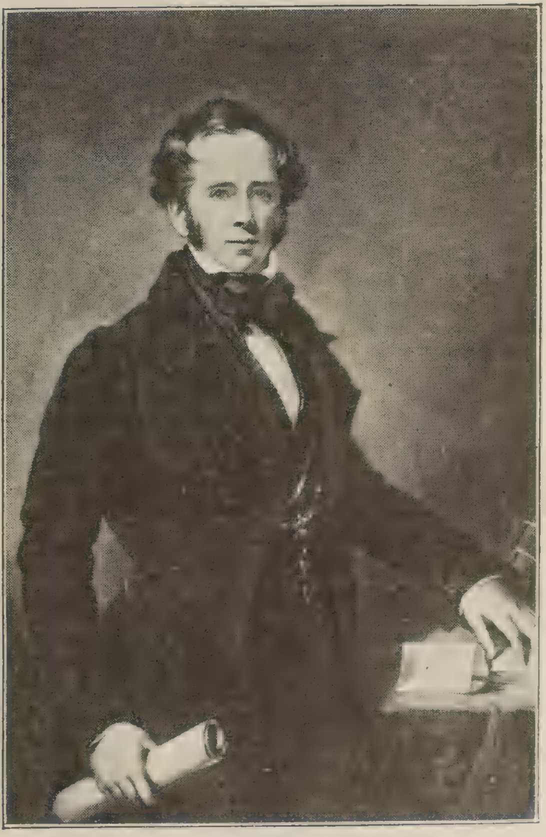


FIG. 24.—SIR CHARLES HASTINGS.

British Medical Journal in 1857. The work of the *British Medical Journal* has been for so many years and in so many places running parallel with the work of The Lancet, and the objects of both journals in separate ways have so often been identical, that no notes on the career of The Lancet would be complete without mention of the great journal whose life has been lived side by side with us. The intention of Hastings to distribute to general practitioners information from metropolitan centres was exactly identical with one of the reasons for the foundation of The Lancet, and all the efforts of the Provincial Medical and Surgical Association were warmly greeted in The Lancet. For some years the Association was satisfied with the issue of an annual volume, but in 1840 the *Provincial Medical Journal* was started, and with certain modifications in title ran for 16 years, when, by unanimous vote at the annual general meeting of the Provincial Medical and Surgical Association, the title of that body was altered to the British Medical Association, and its official journal became in the following year the *British Medical Journal*. That is a pedigree of antiquity for any journal, but if direct descent of the *British Medical Journal* be allowed from a quarterly periodical, the *Medical and Surgical Reporter*, the date of origin can be thrown back four years, while certainly the *Medical and Surgical Reporter* was edited by Sir Charles Hastings. In 1866 Ernest Hart left The Lancet and was appointed editor of the *British Medical Journal*, thereby leading to a break in relations hitherto friendly, but the ill-feeling was so entirely personal that when the leaders left off quarrelling peace was restored. As time went on, our great contemporary grew with the growth of the body whose views it represents, and while the increasing energies of the British Medical Association necessitated the publication in its organ of notices, agenda, and reports in connexion with its committees and branches, these committees and branches became the natural medium for putting into effect many of the movements which had been and were being advocated by The Lancet. In a short time the ill-feeling engendered by Hart's transference of his services from one paper to the other died down, and those who are at present in control of The Lancet, though not conspicuously young, are not old enough to remember when anything but good feeling prevailed between those responsible for the conduct of the two journals.

THE LANCET IN THE 'FIFTIES.

The death of Thomas Wakley occurred in 1862, until when he remained his own editor-in-chief nominally, but as a matter of fact he had taken but a supervising part for some years, his youngest son, Dr. James Wakley, having come straight from graduation to assist his father in 1852. There was consequently no change in the general policy of the paper, and no overt change in editorship. It was left for the son on the one hand to continue the work which had been begun by his father, and on the other to develop that work and also to initiate new activities as a progressive profession demanded their exercise.

When the first Thomas Wakley died it was publicly claimed for him not only in the columns of his own paper, but also in many other places, that he had started principles of reform and in large part secured their realisation. Thus, and above all, had been advanced the status of the medical practitioner, while there were conferred upon medical science, and therefore on the public, the conspicuous advantage of proper opportunities of development in divers directions. Wakley fought the battle of the medical student and the general practitioner at a time when universities and corporations seemed to regard both as persons who should pay fees but whose interests were otherwise of no consideration. He exposed impostors and denounced quackery, while he published medical information which would otherwise have been entirely lost, doing so in the first instance at considerable pecuniary risk, if not in defiance of the law at the time.

So much we hope has been shown.

A Critical Period.

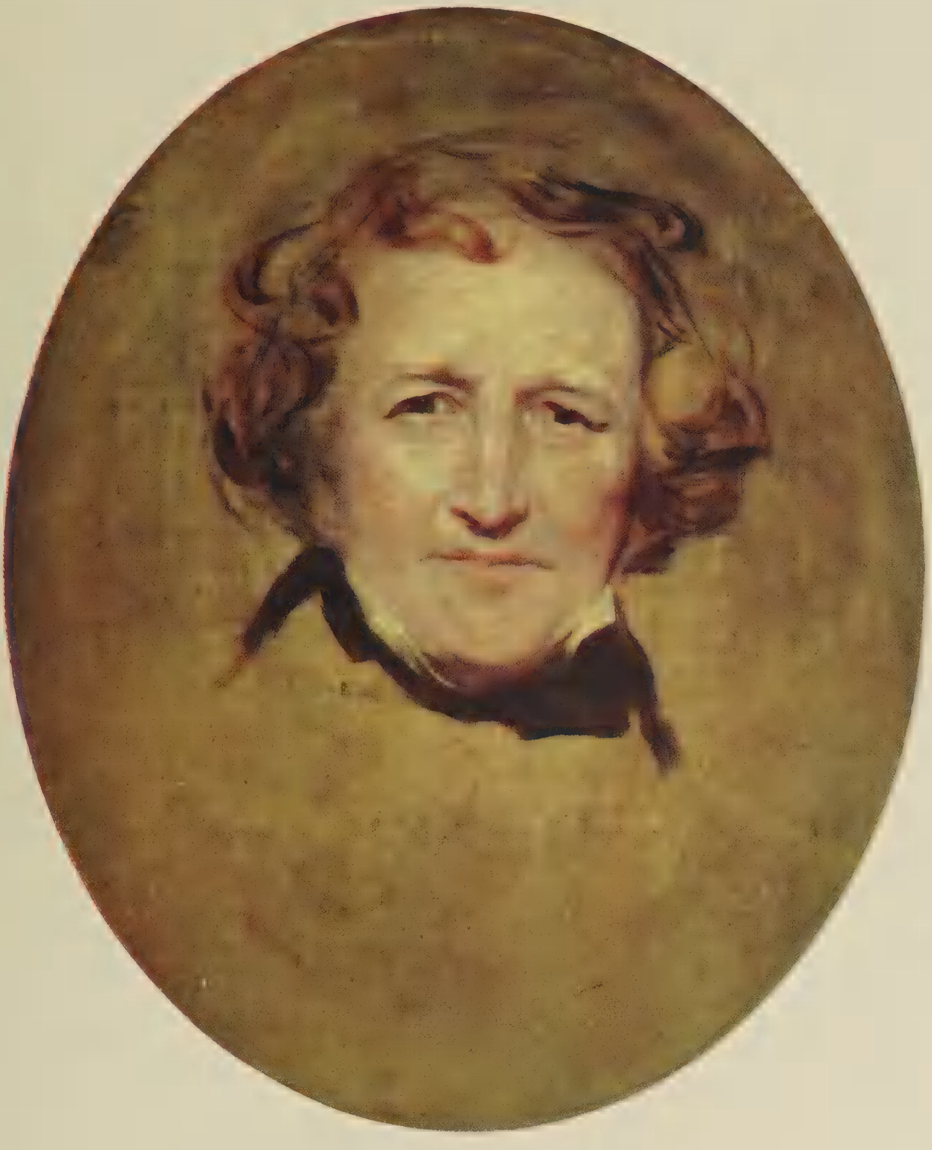
A critical period in the history of The Lancet was reached by the year 1850. The paper had now been established for more than a quarter of a century and enjoyed a reputation for soundness, frankness, and large endeavour, which had spread over the country and upon the continent. Stress, it must be confessed, should be laid on the word endeavour, for leading editorial pronouncements, backed though they were now with the names of eminent persons, were apt to foretell immediate reforms in large directions where either the reforms did not follow or followed to a degree incommensurate with the promises made. At the same time the paper had become assured in its high standing; and while the signing contributors to its columns included many leaders of the medical profession, the editorial staff was known to be recruited from among them or their inevitable successors.

A few prominent contributions are again mentioned to show the endeavour of the paper to keep its public scientifically informed. Lectures by Sir John Simon (Fig. 25) on general pathology provided readers with what was badly needed at the time—namely, a definition of pathology, a scrutiny of its scope and interdependence upon other ranges of knowledge, and a summary of its achievements at the time. Simon is so well known as the father of sanitary science that we are apt to forget that his magnificent labours in the cause of public health were prefaced by pathological work which had been rewarded by the Fellowship of the Royal Society when he was quite a young man. The portrait shows him at the end of an extremely long life. His penetrating survey of pathology, written when he was already a medical officer of health, brought him in 1850 in close touch with the group of men who founded the Epidemiological Society. The objects of that Society were "to study the causes which lead to premature death and preventable disease and to advise administrative bodies

THOMAS WAKLEY, M.P.

Founder of The Lancet

From an unfinished sketch by Edwin Landseer



Thomas Wakley

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thereupon," and how Simon, as administrator, carried out this programme upon his appointment as first medical officer of health to the Corporation of the City of London, and later as first medical officer to the Privy Council, is a matter of notoriety.

Another valuable set of clinical lectures, running simultaneously, consisted of a series of surgical cases recorded by John Erichsen. This formed a scenario for the great work on surgery, which was the most popular text-book on that science for more than 30 years after its first appearance in 1853, when it superseded Samuel Cooper's "bible of surgery." Erichsen's "Science and Art of Surgery" was avowedly written to form a text-book in fuller explanation and exposition of his clinical lectures, and this is the reason why, in its first shape, certain sections of surgery were not included. They were sections on which he himself had not delivered clinical lectures. The last edition of this work was published as recently as 1895, edited, in a form now much altered by necessary additions and revisions, by the late Marcus Beck and Mr. Raymond Johnson.

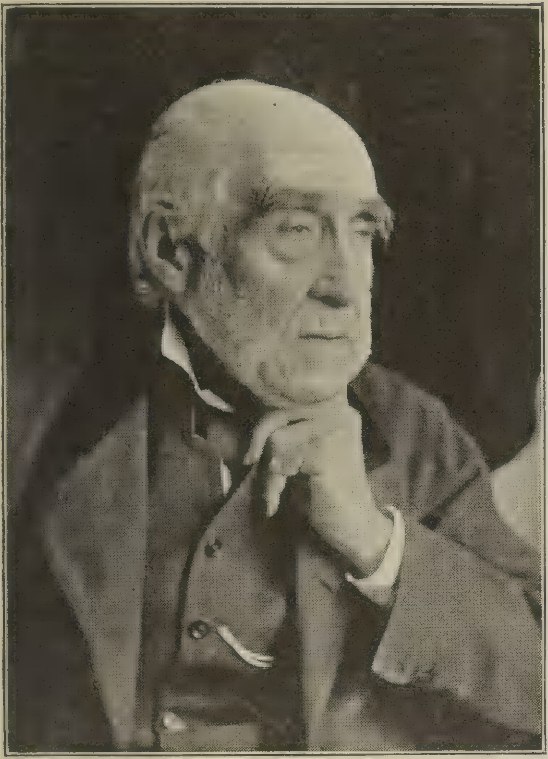

FIG. 25.—SIR JOHN SIMON.

ORGANISED MOVEMENT AGAINST TUBERCULOSIS.

Two movements should be noted as receiving particular prominence in THE LANCET between 1850 and 1860 because of their permanent bearing on medicine, and because the views on the subjects which can be found scattered throughout the pages of the journal show that certain of the difficulties which are still with us were realised in those early days. In 1850 there appeared the first medical report of the Hospital for Consumption and Diseases of the Chest at Brompton. It is a brief abstract of a brief document, but it shows how modern our grandfathers and even our great-grandfathers were in their grasp of the circumstances. The cause was hidden from them, as it was from us for 30 further years, but on the contributory influences to the spread of tuberculosis they were wonderfully clear and well informed. Simon's annual reports, which cover the years between 1848 and 1855, are admitted to be a landmark in the history of sanitation, and these systematic surveys of the general sanitary circumstances of the City of London ventilated questions of housing and other social conditions of the labouring classes whose relation to tuberculosis was immediately seen by the group of medical men who first faced the special problems of the disease.

The statements in the first report of the Brompton Hospital for Consumption were deduced from an analysis of 4000 cases arranged under three heads, the first containing observations on the influence of sex, age, social condition, occupation, and hereditary predisposition, the second dealing with symptomatology, and the third with the results of treatment. The conclusions on the influence of sex immediately contradicted the wide impression that females showed a greater liability to phthisis than males ; the influence upon the figures of occupation and social conditions—trades, occupations, and so forth—were reinforced with excellent tables, checked by the records of a general hospital for the sake of comparison ; and the incidence of phthisis was noted upon those who were compelled by occupation to work in close, ill-ventilated, and over-heated rooms, to sit for many hours each day in a posture unfavourable to the free action of the muscles of respiration, to breathe an impure atmosphere, and to forgo exercise in the open air. We may be certain that the memory of Hood's "Song of the Shirt," which had appeared in *Punch* some ten years earlier, decided the particular reference in THE LANCET to the plight of seamstresses, with regard to whom it is stated that they formed one-fifth of the total number of female patients at the Brompton Hospital. The results of treatment at this date could do little more than indicate that the disease was arrested in about 12 per cent. of the males and 7 per cent. of the females, the value of the figures being, as we now know, nil, for nothing was said as to the stage of the disease on admission, the evidence relied upon to prove arrest, or the duration of that arrest. The absence of any successful course of remedial treatment was remarked upon by one Dr. Francis Ramage in uncomplimentary terms because the hospital did not adopt an inhalation apparatus as devised by himself. The appearance of a long letter by him in the columns of THE LANCET was a little remarkable as, some 20 years before, when the famous quack, John St. John Long, was placed in the dock at the Old Bailey charged with manslaughter, Ramage defended Long's methods. The exertions of THE LANCET had brought this surprising adventurer, whose pass-book testified to the imposing income of £13,000 a year, into an awkward position and secured a verdict of manslaughter against him. And when Ramage, an M.D. of the University of Oxford and a Fellow of the Royal College of Physicians of London, commended Long's treatment in the columns of the *Sunday Times*, THE LANCET said that Ramage had placed himself outside the pale of the profession, and the Medical Society of London expelled him from their body. Dr. Ramage brought an action for libel, obtained a farthing damages, and remained critical of the methods of this paper henceforth.

THE TREATMENT OF INSANITY.

The second movement to which constant allusion is made throughout this period was one directed towards the more intelligent treatment of mental disease. The subject gained prominence by the starting of a testimonial to John Conolly (Fig. 26), the asylum reformer, whose work at Hanwell had been favourably noticed when many quite humane persons considered it too revolutionary. Conolly's was an interesting career. He began as a soldier, became a medical student in France, and graduated in Edinburgh, presenting a thesis upon insanity. For a period, however, he seems to have lost his interest in psychological medicine, practising in the provinces, and taking up municipal work. But shortly after the foundation of THE LANCET we find him in London as professor of the practice of medicine in University College, the nucleus of the University of London, and during his term of office he published a work entitled "Indications of Insanity." Later he left London to hold the post of inspecting physician to certain provincial asylums, and he was subsequently appointed resident physician to the Middlesex Asylum at Hanwell, then the largest institution of the kind in England. His lectures in THE LANCET detailed the modern methods of therapeutics, and were republished in a volume which was widely read. A rational system of treating the insane, instituted in France, had been in practice for some years under William and Samuel Tuke at York, and Charlesworth and Hill at Lincoln. Conolly, when he took charge of the Hanwell Asylum, removed every form of mechanical restraint, and during the 12 years during which he was the head at Hanwell a revolution was effected in the treatment of the insane throughout the country. He created in this short time a fervour for reform amongst the public, which took effect later in THE LANCET, when, as a sequel to the Analytical and Sanitary Commission, an inquiry into the conduct of lunatic asylums was set on foot.

THE CONDUCT OF LUNATIC ASYLUMS.

A further inquiry was made by THE LANCET into the conduct of lunatic asylums in 1875, which it will be convenient to tell of now.

The purpose of this inquiry was to ascertain the general character and adequacy of the material provision made for the insane in asylums and the conditions of their daily life, but it was also hoped to collect and collate statistics of cases where the history went back as far as ten years so as to estimate the results of treatment. Lastly it was definitely set down as an object of the inquiry "to discover measures and as far as may be possible to formulate a system of treatment adapted for the cure of remediable or recent cases and the relief of chronic or incurable cases." The inspection of lunatic asylums promised under such a scheme met not only with approval but with promises of coöperation from certain medical superintendents and officers of asylums, and it is probable that Henry Maudsley was the actual originator of the plan to be followed. But the inquiry came to little, James Wakley having for once failed to find the right lieutenant.

FIG. 26.—JOHN CONOLLY.

The investigations were entrusted to a curious and able man named Mortimer Granville, and the choice was not a happy one. Granville, who had not for many years been in actual medical practice, was an industrious and facile writer and had attained a considerable position as a political journalist, editing for a time one of the big London evening papers. He proposed himself to Wakley as able and willing to write the articles and to have them supervised, but he did not disclose the fact that for his political services he had been promised a Home Office appointment, and that his selection to make an independent inquiry for THE LANCET would probably speed his selection. But Maudsley became aware of the fact and withdrew his support of THE LANCET inquiries, evidently believing that the paper was privy to an intrigue for the personal advancement of one of its contributors. The case was cleared up, but THE LANCET inquiry into the conduct of lunatic asylums was a failure. Granville ceased to be on the staff of THE LANCET, but had for a considerable period great success with the public as a consultant physician.

The reports on the County of Surrey Asylum at Brookwood and the Middlesex County Asylum at Hanwell are distinctly valuable documents. The criticism of the building at Hanwell as it was at that time must have been quite useful to all who were working for the improvement of the treatment of lunatics. The building is described as a vast and straggling one in which "the characteristics of a prison, a self-advertising charitable institution, and some ambitious piece of Poor-law architecture clamour for precedence. The gates are kept by an official who is attired in a garb as nearly as possible like that of a gaoler. All the male attendants are made to display the same forbidding uniform. Whether the justices of this county are especially proud of their livery it is not for us to determine, but in the name of common-sense and humanity we must warmly protest against the weakness of parading it perpetually before poor creatures whose only offence is their misfortune, and whose distressing malady should deter governing authorities from obtruding what is, beyond all question, a source of irritation. County asylums are now most unwisely treated as depositories for ex-criminal lunatics, and even prisoners who have become insane before the expiry of their terms of confinement. One of these morbid miscreants in a ward will make the uniform known to the ordinary inmates, and all idea of homeliness is immediately transformed to a depressing sense of imprisonment; while that large class of lunatics who are partly insane and partly vicious instantly take to prison practices, and readily become imbued with the pestilent doctrine of criminal lunacy, that being insane, they may do wrong with perfect impunity." The report acknowledged that the Committee of Visitors at Hanwell were doing much to improve the conditions of life for the lunatics, but gave the impression that the particular reform which was to have been advocated—namely, segregation of commencing cases—was badly needed.

THE ANALYTICAL SANITARY COMMISSION.

No activity in the columns of the paper ever caused so much public attention as the institution in 1851 of THE LANCET Analytical Sanitary Commission. We must retrace our steps in order to tell an unbroken tale.

Incontrovertible evidence had been gradually accumulating that the popular belief in the prevalence of food adulteration was based on fact, and advances in microscopy and analytical chemistry, which were referred to in scientific articles without any particular reference to foodstuffs, suggested that weapons had recently been furnished which would enable an effective attack to be made upon the adulteration, sophistication, and substitution which were undoubtedly taking place in many quarters. It was decided by THE LANCET to issue the results of microscopical and chemical analyses of the foodstuffs, solid and fluid, in general consumption. The labour implied in such an inquiry, if it was to be undertaken with proper thoroughness and security from error, and if its range was to be so large that the great public benefits anticipated would be secured, made cautious members of the staff reluctant to undertake so brave a departure, and, as a matter of fact, the institution of the campaign hung fire for a year or so. But during that year new facts were obtained and new evidence was collected in directions which had been foreseen in constant references made by the paper for 20 years to certain commercial practices.

On many occasions the first Wakley showed himself to have real journalistic *flair*, and this is a case in point. The fact of the Great Exhibition of 1851 being held in London decided him to start the movement for ensuring a pure food-supply at a time when the metropolis and its neighbourhood were certain to be densely crowded, when catering would be disorderly, and when a prevalence of high prices would lend pressing invitation to dishonesty. Accordingly, in the grandiloquent style of the period, he opened his agitation in favour of legislative reform with the statement that THE LANCET would now undertake—

> "a task large enough to engage the attention of the Government of this country. With the exception of officers to observe and report upon diseased meat or fish, the public authorities take no cognisance of the adulteration and poisoning by the slower, but equally sure mode of adulteration of food and drinks. We will bring the microscope and the test-tube to bear with unerring truth upon things hidden and secret enough to the unaided senses, for the protection of the public, the advantage of the fair trader, and the ultimate exposure and punishment of the fraudulent one."

This sentence formed a general introduction to the new inquiry. The preface to the series of articles issued under the generic title of "THE LANCET Analytical Sanitary Commission," further defined the scope of the proposed inquiry as an attack upon prevalent methods of adulteration so thorough and uncompromising that it would frighten individual evil-doers out of their ill-behaviour and open the eyes of Parliament to the necessity for State interference. "Boards of Health and Commissions of Sewers," said this preface, "have been appointed by Government, but there is no State protection of food":—

> "We propose, then, for the public benefit to institute an extensive and somewhat vigorous series of investigations into the present condition of the various articles of diet supplied to the inhabitants of this great metropolis and its vicinity, and probably the inquiries will be extended to some of our distant cities and towns. One special feature of these inquiries will be that they are all based upon actual observation and experiment; the microscope and test-tube throughout these investigations will be our constant companions. We shall borrow but little from the writings of others, preferring to labour and think for ourselves and to work out our own conclusions."

The wish of THE LANCET to be thorough was indicated by the stated intention of publishing the names and addresses of the parties from whom the different articles were purchased where examination had proved unsatisfactory, unless the fraudulent practices were stayed within the next three months. The name of the principal expert engaged on the inquiry was not at the time disclosed. It was Arthur Hill Hassall, but readers of THE LANCET and many members of the public were quite able to identify the authorship, inasmuch as Hassall had published in THE LANCET interesting illustrated articles revealing the use that could be made by an expert of the microscope and disclosing also his capacity as an analytical chemist. Associated with Hassall was Henry Letheby, then lecturer on chemistry at the London Hospital, and later, when the fruits of the inquiry were seen to reflect enormous credit on its originators, some dispute arose as to the exact parts played by different persons. The Commission was devised by the Editor of THE LANCET, the plan of its working was based on previous work done by Thomas and William Henry, well-known chemists, the bulk of the microscopical examinations in the first five years, amounting to over 2000, were made by Hassall, while Letheby conducted all the important chemical analyses. The first articles of food to be made the subject of microscopical and chemical examinations were coffee, sugar, arrowroot, London water, chicory, mustard, bread, cocoa, oatmeal, tea, milk, butter, and various spices, sauces, and preserves. The investigations were thorough; they left no loophole for offenders; they allowed no possible cavil on the ground of doubtful honesty of purpose, and they were simple. All precaution was taken to avoid error, and proved effective, for it would appear that the analyses were challenged once only.

The first foodstuff dealt with was coffee, and began with the statement that coffee was largely adulterated, when the dilemma in which those who denied the proposition would be placed was indicated by figures. Official returns showed that the population of the country had increased; temperance advocates provided statistics indicating a greater use of the commodity; while the Exchequer figures proved the amount of coffee imported, as exposed by the coffee duties, to have dropped between 1849 and 1851 by £50,000. The significant fact was mentioned that during this period chicory was being cultivated in large quantities, and yet little or none of it was retailed to the public as such.

Then followed careful and illustrated descriptions of the microscopic appearances of the unroasted coffee berry, the roasted berry, and its investing membrane. These appearances were contrasted with illustrations of roasted chicory root, while the minute structures of corn-flour, potato-flour, and bean-flour and ground coffee were shown for comparison. The results of such microscopical examination of 34 different coffees of all qualities and prices justified the predictions previously made in THE LANCET; 31 coffees were adulterated, the 3 exceptions being retailed at a high price. Chicory was present in 31 instances and other flours in varying quantity in different samples. In some instances the coffee present amounted to less than one-fifth of the bulk of the samples taken, and the rather astonishing calculation was added that, using the figures of 1849 as a basis of calculation, the revenue had been defrauded during that year of no less a sum than £300,000.

The results of a second or confirmatory examination were then appended. Here 20 samples of various coffees had been purchased at the establishments of different metropolitan grocers and tea and coffee merchants, and in every single case the coffee was found to be adulterated, in 16 the tampering being of the grossest character. To defend the honest trader from his fraudulent competitors the names and addresses of the dealers from whom the pure samples had been purchased were printed in full, and the names of the adulterators were promised at a later date unless subsequent examination of their wares showed them to have profited by the warning.

At the expiration of the three months' notice, during which the names of offenders were not given, the pledge of publicity was redeemed. A long series of further analyses was published, with the full names and addresses of the vendors, the price of the coffee, the words of the advertisement claiming excellence, and the character of the adulterations. The daily press reprinted large portions of the articles, complimented THE LANCET upon its public spirit, and declared it to be the immediate duty of the legislature to adopt effective measures against such frauds.

The method employed in dealing with the analysis of coffee was followed in the analyses of other substances which appeared in the columns of THE LANCET during the next ten years; it will be sufficient to illustrate the work if no more than the bare results of the investigations are related. The second substance dealt with by the Analytical Sanitary Commission was sugar. Having described the macroscopic and microscopic appearances of sugar, both cane and grape, and detailed the foreign bodies—such as lime, lead, sawdust, starch, and acari—commonly found in impure specimens, the Commissioner gave the results of the examination of 36 brown sugars of different qualities and prices. Acari were present in 35 of the samples. Grape-sugar was detected in every sample, usually a proof of sophistication, for most of the sugars purported to be the much more powerful sweetening agent, cane-sugar. Stony particles or grit were observed in 11 samples, and woody fragments in 13. In four samples a variable quantity of flour had been introduced, evidently for the purpose of adulteration. Fifteen samples of lump sugar were then examined, and the results were found to compare very favourably with the results of the examination of moist sugar, for there were no acari, no grape-sugar, and no grit. Samples of moist sugar were then purchased in different parts of the metropolis, and every single one contained deleterious material, while two had been adulterated with flour.

The next article which fell under the Commission was arrowroot. The name "arrowroot" had been made, by dealers in the first place and in the second place by the general public, to cover almost every fecula bearing any resemblance to the true *Maranta arundinacea*, no matter how dissimilar the original plant might be. As a result there were several powdered substances in the market varying in price from a few pence to two or three shillings per pound, none of which was Maranta, but all of which had the valid claim of custom to the appellation "arrowroot." The Commissioner decided to get over this confusion by stating in his analyses the name of the plant from which the arrowroot was derived, to which end he examined specimens under the following names: Maranta arrowroot; Manihot arrowroot, or tapioca; Tacca arrowroot, a pulped tuber from Otaheite; Curcuma arrowroot; Arum arrowroot, the tubers of cuckoo-pint; and British or potato arrowroot, which was, frankly, potato-meal. The adulterations to which arrowroot was found to be commonly subjected were (1) the mixing of other tubers in varying proportions with true Maranta, (2) the substitution of an inferior for a superior root, or (3) the addition to one of the genuine "arrowroots" of some fecula not generally recognised as arrowroot at all. The most common sophistication in the trade was the addition to the genuine Jamaica arrowroot or Maranta root of potato-flour or tapioca in varying proportions. A second form of adulteration was the substitution of sago or potato-meal for Maranta. A third was the addition of potato-flour to an inferior root such as tapioca. The net result of the examination of 50 samples differing in quality, price, and appearance was instructive. Of the first 17 samples, all high-priced arrowroots varying from 1*s*. 8*d*. to 3*s*. 6*d*. per pound, 10 were found to be unadulterated and seven adulterated, four to an extreme extent. Of the next 28 samples of lowly-priced arrowroots, varying from 1*s*. to 1*s*. 6*d*. per pound, 17 were found to be unadulterated and 11 adulterated, five of the latter very grossly. In one of these adulterated specimens a few grains of the genuine Maranta arrowroot were detected by the microscope, but three samples consisted of a mixture of potato-meal and sago-flour, while a fourth proved to be potato-meal only. The last five samples were articles sold in canisters which bore the dealer's warranty setting forth the very superior and unusual quality of the article and challenging observation and scrutiny. Of these one was marked "Superfine West India Arrowroot, Warranted Genuine"; this was heavily charged with potato-flour. A second was "Recommended by the Faculty" as the most nourishing of all foods for children and invalids; this was entirely tapioca save a few grains of Maranta arrowroot. A third was "Warranted Free from Adulteration" and was merely potato-flour. The fourth and fifth were labelled "Arrowroot" and consisted of nothing but potato-flour.

Pepper next engaged the Commissioner's attention, with the result that he discovered that more than half the pepper purchased previously to certain convictions secured by the Excise officer was adulterated, but that subsequently to the enforcement of the law by the Excise authorities with regard to this particular condiment adulteration in an extensive form had ceased—a remarkable example of the practical effect of a little of the legislative interference which it was the chief aim of the Analytical Sanitary Commission to make general.

The next inquiry was larger in scope and of a different character. Its subject was the water-supply of London, and it was conducted in an uncompromising manner. The nature of the various impurities of water was first explained, and the action of the reservoir or cistern in favouring such impurities was discussed. A number of experiments were recorded dealing with the action of water on lead and iron, and the sources of the London water-supply at that date were investigated. The summary of the investigation ran as follows: "The waters at present in use in this metropolis are all hard, and have all the disadvantages of hard waters. They are, moreover, river waters, and for the most part contaminated to a great extent with organic matter, dead and living; add to these points their further deterioration by contact with lead cisterns and by the accumulation and growth of animal and vegetable productions which take place in these receptacles, and the case is proved against the whole of the present supplies of the metropolis." The metropolis to-day possesses an unrivalled water-supply, and the learning and activity which have brought this about have been regularly chronicled in the pages of THE LANCET from the day of the first indictment to the present era of great accomplishment.

From big to little, the next investigation concerned mustard. Here the Commissioner succeeded in demonstrating that genuine mustard, whatever the price paid, was hardly to be obtained in the year 1851. Of 42 samples submitted to examination every one was adulterated, and in every case the adulteration was the same in kind, varying only in degree, and consisted of the admixture of wheat-flour and turmeric as a colouring agent.

Bread came next, and formed the subject of a thorough investigation. The first report dealt merely with the chief constituents of bread as made from wheat, barley, oat, rye, rice, or Indian corn flour. The diseases of cereal grasses were detailed and the microscopic appearances of ergot and the different smuts, rusts, and mildews were described. Next the results of the chemical and microscopical examination of 44 samples of wheat-flour purchased from different corn-chandlers and bakers residing in the metropolis were given, to show that in no instance was there any other farina than wheat observed. This satisfactory result was attributed to the repeal of the Corn Laws, but it also pointed to the fact that the millers and corn-dealers were honest folk and that the bakers must be considered to bear the responsibility for anything other than wheat-flour found in bread. Twenty-four samples of bread having been purchased at random at the establishments of bakers in the metropolis, the result of examination was that every sample was found to be adulterated with alum.

Cocoa was analysed on precisely similar lines to those employed when dealing with coffee, and the result was that of 56 samples examined, many of which were warranted pure and possessing all sorts and kinds of charming qualities, eight only were found to be genuine. Sugar was present in 43 samples, its amount varying from 5 almost to 50 per cent., and starch was found in 46 samples, its amount varying also from 5 to 50 per cent. The starch was derived from wheat-flour, potato-flour, sago-flour, or a mixture of these in varying proportions.

Passing over the inquiries made into the purity of opium, tobacco, and certain invalid foods as being hardly germane to the inquisition held upon foodstuffs of the people, we come to tea. Tea formed the subject of a very lengthy and exhaustive examination. The leaves of the common willow, oak, sloe, hawthorn, elder, beech, elm, and an inferior sort of camellia were depicted side by side with illustrations of the genuine leaf of the tea-plant. Thirty-five samples of black tea bought at random in London shops were then analysed. Out of this ordeal the popular beverage emerged satisfactorily by comparison with the results found in the cases of coffee, arrowroot, and cocoa. In all 35 samples no other leaves but those of genuine tea were found. Twenty-three only, however, were perfectly pure, 12 having been treated with black-lead, indigo, turmeric, and mica, these last iridescent particles being added to give a sort of glaze to the leaves. No grosser adulterations were detected, but lest these reassuring results should blind the public to the possibility of the same being practised an account was added of the trial, instigated by the Excise, of a man and his wife for the manufacture of spurious tea. In this case the inspector under the Excise Act found the prisoners on premises at Clerkenwell with an extensive furnace installed in one of the rooms. Before this was suspended an iron pan containing sloe-leaves and "spent" tea-leaves, which had been purchased from coffee-shop keepers. On searching the place an immense quantity of these spent tea-leaves and bay-leaves were found, as well as every description of ingredient likely to be employed for the purpose of illicit manufacturing of tea—such, for example, as gum, copperas, and blacklead. There was a very large quantity of spurious tea in the room which well simulated genuine tea, and in another room 100 lb. of re-dried tea-leaves, bay-leaves, and sloe-leaves were spread out to dry. The practices revealed in this case were commoner, THE LANCET Commissioner considered, than would appear probable by the results of his analyses. There was, indeed, considerable evidence that the fabrication of tea was extensively practised, spent leaves being the chief stock-in-trade, when treatment with gum and mica gave "richness and bloom" to the appearance of the mess, and sulphate of iron was added to make the decoction astringent. Chestnut-leaves and sloe- and bay-leaves were occasionally used to give bulk. In the course of this investigation, it may be added, 20 specimens of green tea were examined, when it was found that the whole of them were artificially coloured.

In 26 samples of milk, 14 were adulterated, the addition being simply water. It was not found that any more complicated form of adulteration was practised, such as the simulation of creaminess by colouring matter or the addition of thickening substances, though these manœuvres were not unknown. Isinglass and gelatin were examined, with the result that each was found to be sold to the public for the other, in spite of the fact that they possess different qualities and that as a rule isinglass is better than gelatin. Thirty-three samples of vinegar were examined and the amount of acetic acid contained in them was found only in 23 cases to reach the standard laid down by THE LANCET as necessary to constitute a good vinegar. The addition of 1 part in 1000 of sulphuric acid was permitted by law, but many of the specimens exceeded the legal limit in this direction.

Spices next engaged the attention of the Commissioner, and out of 21 samples of ground ginger 15 were found to be adulterated, the substances detected being sago-flour, potato-starch, wheat-flour, ground rice, cayenne pepper, mustard husks, turmeric, or any combination of these. In whole cinnamon, of 12 samples seven were found genuine, while the other five were examples, not of adulteration, but of calm substitution, for in each case the thing sold as cinnamon proved to be the vastly cheaper cassia. In powdered cinnamon, of 20 samples six were genuine; three consisted entirely of cassia and 10 were adulterated with baked wheat-flour, sago-flour, and arrowroot. It is significant to note from Maculloch's Commercial Dictionary that the heavy duty on cinnamon caused the consumption of cassia in the United Kingdom to rise to treble its former amount between the years 1820 and 1840. Examination of 18 samples of nutmegs, despite fables of Yankee astuteness in manufacture, showed them all to be genuine. Mace, cloves, and allspice came out of the ordeal in a similarly handsome manner. Of 21 curry powders 19 contained ground rice, flour, salt, and colouring matter—red lead, for example—in varying proportions. Thirty-four samples of bottled fruits and vegetables were all artificially coloured with copper. Of 28 samples of anchovies seven were not anchovies at all, two contained some genuine among the spurious fish, while the brine of 23 samples was charged with Armenian bole or Venetian red. Various potted meats and fish and sauces were examined, and in many of them colouring matter was found to have been introduced. Of 35 samples of preserves and jellies 33 were found to contain copper, but it was suggested that the copper saucepans in which they were prepared were responsible for this.

Many of these examinations—for example, those on such important commodities as coffee and bread —were repeated from time to time, and their results as given showed that matters greatly improved in London after the revelations of THE LANCET Commission. In 1857 the investigation was carried into certain provincial towns. Among others, Birmingham, Manchester, Liverpool, and Leeds were visited, and the results of investigations in these cities led to the conclusion that London was worse supplied with the necessities of life than the large provincial towns; but in 1858 adulteration did not exist to more than one-tenth the extent that it had done at the opening of the Commission. Despite the success of his undertaking, however, the Editor of THE LANCET declared that he had no intention of abandoning the subject until effective legislation had been secured.

He had not long to wait, and THE LANCET Commission was a prelude to all our present laws in respect to the adulteration of food. The popular excitement created by the revelations of the Commission transcended even Wakley's enthusiastic expectations and made legislation against such abuses a matter of immediate importance. A Select Parliamentary Committee was appointed, and examined as far as possible all those likely to have any familiarity with the known adulterations, the methods necessary to detect them, their injury to public health, and their effect on the national revenue. The evidence given before this Select Committee confirmed the researches of THE LANCET Commission, not only in spirit, but in detail, and as a result the first general Adulteration Act was drafted and became law in 1860. This is known as Scholefield's Act. Its first section enacted that every person knowingly selling food or drink mixed with any ingredients injurious to health, and every person selling as pure any article of food or drink which is adulterated, should for every such offence on summary conviction pay a penalty not exceeding £5 with costs. THE LANCET was but moderately satisfied with this Act. The measure dealt with adulteration in but one of its aspects—namely, as it affected health. It did not touch upon the broader question of fraud. It was doubted if the small pecuniary penalties proposed to be inflicted by the Act would be deterrent, and it was pointed out that the appointment of analysts was left entirely optional. As the district boards and town councils empowered to make the appointments were largely composed of the very class of tradesmen who were the chief gainers from the practice of adulteration, it appeared probable the power would not be used. Future legislation, said the original Wakley, was imperative, and his words were confirmed some ten years after his death, during the whole of which time James Wakley and his brother, Thomas Henry Wakley, now proprietors of the paper, worked unceasingly to that end.

A second Act was passed in 1872. A second Select Committee sat in 1874 to inquire into the working of the two Acts, Mr. Scholefield's and that of 1872, under which many technical difficulties had arisen, and the result of this second Committee was the Sale of Food and Drugs Acts of 1875 and 1879. All this train of legislation was the direct outcome of Wakley's Analytical Sanitary Commission, and the vigorous manner in which the father's work was furthered by his sons.

THE INFLUENCES OF RAILWAY TRAVELLING.

The idea of an Analytical Sanitary Commission soon developed into a desire to inquire into all and every circumstance or position where medicine was directly interested, and henceforth, under the title of Commissions, articles were written, the result of investigations by competent persons, upon widely differing manifestations of social activity and development. The subjects of these Commissions are enumerated later (see p. 760), when many of the reports had been issued and many were to follow, but to one of these reports we will here make full reference because it illustrates well how the columns of a medical paper, running for a century, form a comment on public health in its widest aspect at different periods during that century, thus illustrating the profound modifications of judgment which ensue on experience.

The railway and THE LANCET arrived in the world practically at the same time; although history narrates earlier experiments there was in the year 1825 in the world only one railway carriage built to convey passengers. It ran on the first railway between Stockton and Darlington and bore on its panels the motto "Periculum privatum, publica utilitas," the words selected by George Stephenson as best describing the purpose to be subserved. He foresaw, in his own words, "the day when railways would come to supersede almost all other modes of conveyance in this country and railroads become the great highways for the King and all his subjects." Although the old highways remained, his vision was accurate over a hundred years; it is only to-day that there are signs that the paramount influence of the railway will be modified and that the old highways will be adapted to newer modes of travelling. But he would be a bold person who attempted to imitate Stephenson's words of prophecy and foretell the story of travelling a hundred years hence.

The first words of Stephenson's classical motto were immediately challenged, for the most alarming pictures were put forth as to the injurious influences on public health which railway travelling must produce, and awful dangers were described as impending over rash adventurers who should thus risk their safety. The immense velocity of 20 miles an hour was said to be fraught with danger to the respiration, and Dr. Dionysius Lardner, the author of "The Cabinet Encyclopædia" and "The Steam Engine," stated that the carbonic acid generated by the fuel when passing through long tunnels would inevitably produce suffocation by the destruction of the atmosphere. Sir Anthony Carlisle, surgeon and art critic, and twice President of the Royal College of Surgeons of England, had stated that tunnels would expose healthy people to colds, catarrhs, and consumptions, while boiling and maiming would be an every-day occurrence, but on the whole our pages were signally free from these melancholy prophecies. The medical profession—those at any rate who were in actual practice, and not merely praising days gone by—were unable to endorse the view that either physical ills or nervous complications followed railway travelling, and it was not till 1862 that it was considered in THE LANCET that any matters had arisen worth discussing on the subject of railway travelling in its relation to public health. But in that year the question arose in several directions. It became the opinion of medical men that the important social changes attributable to railways, while they afforded to some the means of avoiding unhealthy environments and of obtaining more time to get through their work, were not without serious drawbacks. The greater facilities for transaction of business provided by rapid communications were, it was thought, producing a corresponding change in the habits of life, for while more time was devoted to work, measures to ensure vigorous physical health were neglected. With some 40 years of figures to rely upon, it could be shown that travel by rail was safe compared with travel by coach and carriage, but collisions directly attributed to the overworking of engine-drivers, signalmen, and guards, were always made the subject of comment in our columns when trustworthy details could be got.

In 1862, the year of the death of its founder, THE LANCET made a detailed inquiry into the influence of railway travelling on public health, and the report which was published was a very detailed review of all the circumstances. The portion of the report on the railway tracks was written by a well-known engineer, went closely into full details of the formation of the bed, the life of the rail, the weight of the carriages, and the methods taken to avoid vibration and oscillation. The different carriages of four selected lines—namely, the Great Northern, the South Eastern, the Eastern Counties, and the Great Western Railways, were described. Robert Angus Smith, the well-known chemist, pupil, and translator of Liebig, and an authority on the atmosphere of mines, dealt with their ventilation and temperature, affording, however, no solution of the dilemma that plenty of air may mean plenty of dust. C. J. Blasius Williams, one of the founders of the Brompton Hospital, and a leading authority on pulmonary disease, urged the great precautions that should be taken against chill. Forbes Benignus Winslow, the psychologist whose work led to much of our present procedure where the influence of insanity upon crime is in question, wrote at large on the cerebral effects and mental excitations of railway travelling.

A most important part of the Commission was an inquiry into the health of railway officials and elaborate comparisons were made between the English and French figures. The result of investigation among the servants of the chosen companies convinced the representatives of THE LANCET that, while to be an efficient railway servant required a sound and healthy constitution, those who best satisfied such a test were those among whom the highest rates of sickness prevailed, the suggestion being that the more mentally developed were the most subject to shocks.

All the way through the inquiry it is clear that the Commissioners were themselves imbued to some extent with the public view, even while refusing to acquiesce in it, that there was something about railway management and even about railway travelling which required self-control. We find Brown-Séquard and Russell Reynolds, leading neurologists of the day, and distinguished alike for their clinical and literary work, consider railway travelling to be especially contra-indicated "where there is a tendency to softening of the brain," while Ernest Hart narrates a case of spinal anæsthesia induced by daily travelling, and White Cooper, surgeon oculist to the Queen, states that his daily experience convinced him that injurious consequences to the eyesight have followed the introduction of railway travelling. Other medical men warned the readers of THE LANCET of the effect of railway travelling on pregnant women, on sufferers from renal or vesical affections, from hepatic disease and dyspepsia. One of the last sections of the Commission deals with the question of railway spine, concerning which at the time there were no very definite opinions. It was not, indeed, till three or four years afterwards that Erichsen wrote authoritatively on the subject of "Concussion of the Spine," and to-day we are little clearer as to what was exactly meant by the condition. The various morbid conditions, however, which followed or were stated to follow railway accidents were called "railway spine" without any particular attempt to ascertain what, if any, organic changes had taken place, what were the real manifestations of traumatic hysteria, and how to draw the line between disease and malingering.

One of the main conclusions come to is that railways, though not offering anything like the dangers to life, limb, or general health which the public seem to have believed, and which many learned persons warned them would be the case, are none the less badly adapted to the requirements of passenger traffic. All the injurious influence clearly traceable to railway travelling appeared chiefly to arise from the inefficiency of the machinery for the work which it was intended to accomplish. A large number of suggestions are put out for keeping trains at equable temperature, providing air in hot weather and shelter in cold weather. It is pointed out that there should be ready communication between passengers and the guard, by which one may gather that communication cords had then not been established. Many of the instances of discomfort or injury are due to the fact that there was no lavatory provision, and a very definite warning is given to season-ticket holders, the class known to Americans under the convenient term of "Commuters":—

> "There are only two classes of persons especially likely to be injuriously affected by moderate railway journeys, even though frequent: they are persons advanced in life and of weakened power, and those who are subject to the special diseases which have already been studied in this relation. The actual exertion, the excitement, the mental strain, the peculiar influences of the motion of a railway carriage, indicate its dangers to those first mentioned. These constitute a small minority. But there are a number of persons who, although not far advanced in age, are yet the subjects of various conditions of ill-health depending on insidious degenerative disease of the brain and heart. The season-ticket holders of the railways are in large numbers men who have passed the best years of their life in hard and exhausting employment of mind and body. They are the successful merchants, the senior partners of flourishing firms, which they have built up by a life of labour; half-retired tradesmen, half-invalid bankers, *et id genus omne*. We can now see that it is by the injuries which have resulted to these men from their constant travelling to and from town that an impression has become current as to certain mischiefs which habitual travelling inflicts. When it is stated that such a banker, who comes up 50 miles three or four times a week, has to lie down half an hour before he can sign a cheque; that such a well-known chemist has suffered from symptoms of brain excitement since he bought his new house by the sea, and travelled daily to London; or that a certain barrister has found himself obliged to pay for his journey by epileptic seizures, the alarm soon extends beyond reasonable limits. But few men can endure without suffering

to travel fifty or a hundred miles daily to their business for any length of time. The influence of the journey itself is heightened by many accessory conditions to which we have adverted, and the present construction of the rails and carriages is such as to deprive the traveller of all those mitigations by which his discomfort might be diminished and his health safeguarded."

No doubt the great improvements which soon followed, and which were acknowledged in some places to have been stimulated by our report, did remove genuine sources of physical damage to the class especially in question; but no doubt, also, some of these grim accompaniments of railway travelling, even in its more primitive form, were imaginary. Either or both these things are indicated by the fact that the second Thomas Wakley came up to his office from Brighton, returning the same day, over long periods of time, until he was well over eighty years of age. Two years after the report was published the murder of Briggs by Muller in a railway train led to a public outcry for the provision of communication cords.

THE SECOND EDITOR.

SUCH were a few salient features of THE LANCET when Thomas Wakley senior died and when his youngest son, James Wakley, became in name, what he had been for some years in fact, the editor-in-chief of the paper.

James G. Wakley was born in 1825, educated at University College School, and took the diploma of M.R.C.S. in 1849, becoming M.D. of the University of Aberdeen three years later. He never engaged in medical practice, but almost immediately became his father's editorial assistant, and was shortly entrusted with a large share of editorial responsibility. Upon his father's death he became joint proprietor of THE LANCET, with his elder brother, Thomas Henry Wakley, who was at that time practising as a consulting surgeon, but who shortly retired from practice to become manager of the paper. The chief scientific advisers of THE LANCET were at this time Brudenell Carter, Francis Edmund Anstie, Christopher Heath, Harry Leech, medical officer to the Port of London, and Tilbury Fox. Ernest Hart was sub-editor. (Fig. 27.)

James Wakley's characteristics as editor were very simple. He made no pretensions to great learning or to a deep acquaintance with science. He had an ample store of good sense, a rare insight into both professional and public opinion, promptness in making up his mind as to where the right lay, and courage in the course which was accordingly adopted. He was free from spiteful feeling, and was particularly desirous that the opinions and criticisms of the journal for which he was responsible, though often vigorously expressed, should not lead to the sort of quarrelling which had characterised so markedly the earliest issues of the paper. He had, however, an extremely warm temper, and the editorial room of THE LANCET was more than once the scene of a personal fracas, the fact that James Wakley was a notable boxer determining the issue of the conflict. Nevertheless he was a sensitive and even deeply religious man, and afterwards sincerely regretted such episodes.

The great features of the work of THE LANCET during the editorship of Dr. James Wakley, which terminated with his death in 1886, were those which might have been expected from such a man succeeding to such a heritage. He left the scientific side of medical affairs in the hands of his staff and devoted himself to extending the public functions of the paper in the widest way. Civilisation he saw teemed with questions having a medical bearing which could not be settled without the assistance of medical science, and the matters upon which he concentrated himself were especially the duties of the State to the sick poor, to those afflicted with infectious disease, and to the insane. He urged upon influential writers the necessity of exposing in his columns all conditions of employment which were attended with insanitary circumstances. He had in Hart a very able lieutenant.

Ernest Hart, then quite a young man, after a successful career at the City of London School and St. George's Hospital, showed alike his ability and wide range of thinking in his duties at THE LANCET. He was attached to the ophthalmological department at St. Mary's Hospital, but his principal work for THE LANCET was to conduct, with Anstie and Dr. Carr, of Greenwich, an inquiry into the conditions of nursing in the Poor-law infirmaries, a development of the Analytical and Sanitary Commission. Ernest Hart did brilliant work for THE LANCET, but he was an ambitious man, and he considered that his services were not properly recognised by the designation of sub-editor, and the withholding from him of public credit. The relations between him and the rest of the staff became strained, and in the middle of the work started by THE LANCET on behalf of the sick poor in metropolitan workhouses he resigned and transferred his services immediately to the *British Medical Journal*, succeeding Markham as editor in 1866. It would serve no purpose, even if the material for absolute accuracy were forthcoming, to enter into the question of this quarrel, which, however, had an influence on the pages of both journals for a good many years. James Wakley and Ernest Hart lived for a considerable period on terms of open hatred, which were not softened by Hart's description of himself as late "co-editor" of THE LANCET. There were constant rumours of libel and even threats of violence. Two camps in the medical profession were formed, and while the protagonists grew careful in their personalities, each being aware of the other's prowess, their followers fomented the ill-feeling. It cannot, however, be said that the cause of medicine suffered, as those responsible for the conduct of each paper were so alert to get ahead of each other that they were stirred to efforts which gave excellent results for their readers.

Dr. Watkin William Jones, of Streatham Common, was an indefatigable assistant editor from 1870 until 1876.

WORKHOUSE ADMINISTRATION: ANSTIE'S WORK.

The inquiry into workhouse administration was the outcome of the senior Wakley's extreme dislike to the Poor Law Amendment Act of 1834, and we must return to the views of the father as dictating those of the son.

Till 1834 the Poor Laws of England were mainly framed against vagrancy, "sturdy" mendicity, and "valiant" pauperism—practically, the laws had not been altered since Tudor days. In 1832 a Commission of Inquiry was appointed to report upon the whole subject, inasmuch as it was suggested that the pauper was considerably better off than many men in employ. Outdoor relief was found, upon examination, to be subject to all sorts of fraudulent claims, and so far popular belief was justified; indoor relief was open to the charge of bad administration. The report of the Commission showed new legislation to be urgently needed, and an Act was passed which abolished outdoor relief except as medical attendance, and established a uniform method of administration for indoor relief through the workhouses. The "unions," as the units of grouping were termed, followed and swept away old landmarks in the country. Undoubtedly the first and striking result of the new Act was to transform a large number of paupers into self-supporting labourers, and some parishes were relieved of ruinous rates. But on the other hand, the poor in many districts suffered from the working of the Act; the test of poverty was found to be too drastic, while in the workhouse, now become the only shelter for persons whose misfortunes had not been earned, as well as for the shiftless and dissolute, a routine too much resembling prison prevailed. On these grounds, widely held but only partially justified, Wakley was as vigorous an opponent of the Act as Dickens, but he was able to justify his strictures by finding that it proposed to deal unfairly with the medical profession. On ascertaining this, he could grasp no stick too heavy with which to beat it, and his desire to champion the cause of the poor was eternally kept alive by the feeling that all opposition to the Act meant assertion of the rights and status of medical men.

Wakley pointed out that there was no proper provision for the medical attendance so freely promised by the Act. The Act thus regarded seemed to be one of pure economy, designed to make the able-bodied work, to make those in full wages save against a rainy day, and to make the well-paid of a family help the ill-paid. In no case were those in good health to be assisted by the State save as a last resort. As a result the medical man became a very important factor in the working of the Act. It rested upon his decision whether an individual should be helped or should not, and the medical man was not to be paid properly. The care of the sick pauper in many places was thrown upon him in return for a pittance. As this became clear from the editorial letter-bag the indignation expressed in THE LANCET at the regulations for medical attendance spread to the whole Act, and the early denunciations of its working must be taken to represent particular resentment of the sweating of medical men as much as general sympathy with the poor and down-trodden. The paper began to concentrate upon the treatment meted out to the Poor-law medical officer, and here was close on the heels of the great reproach under which the working of the new Act lay—namely, that the provision for the sick poor was totally inadequate. These persons, whose poverty was largely undeserved, were subjected to prison treatment conceived in an ignorant and barbarous spirit, and if the ideas expressed in our columns became a little less sweeping as time went on, and the humanitarianism of the views not quite so wholesale, the existence of a real scandal in the working of the Act became none the less apparent. The main scandal was the fact that the workhouses were badly built, badly administered, death-traps to those admitted, and foci of disease to those without.

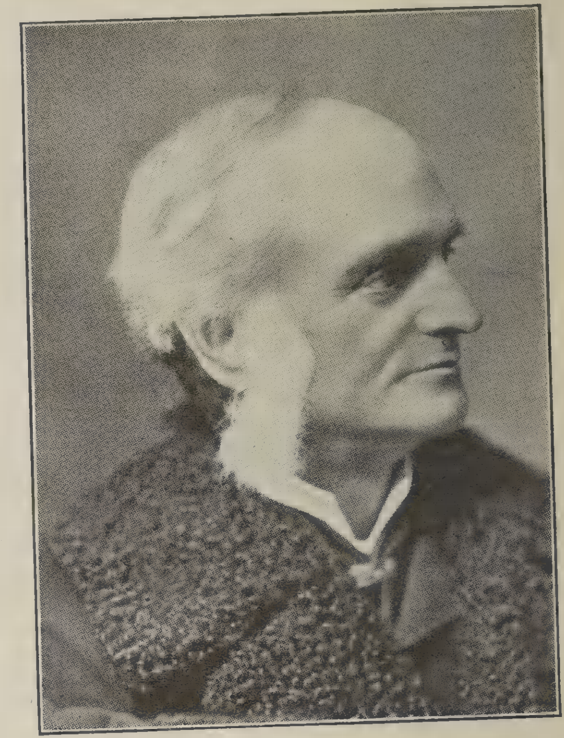

FIG. 27.—ERNEST HART.

James Wakley considered it a legacy from his father to make a complete investigation into the treatment of the sick poor in workhouses. When, therefore, two tragedies in rapid succession—one occurring in December, 1864, and the other early in 1865—called the attention of the public to this very topic in an urgent and even heart-rending manner, he seized on the opportunity to institute an inquiry on the general pattern of the Analytical Sanitary Commission, appointing F. E. Anstie, William Carr, and Ernest Hart to make the investigations. Carr was a highly endowed and energetic man, and as "Carr of Blackheath" was well known far outside his circle. He was one of the most prominent supporters at its start of Epsom College.

Francis Edmond Anstie was certainly one of the most valuable advisers and auxiliaries that THE LANCET ever possessed. His first appearance in London was as an anæsthetist, but in 1859, having been admitted a Member of the Royal College of Physicians of London, he went into practice as a physician, became assistant physician to the Westminster Hospital, and joined the staff of THE LANCET, where he proved a learned and sound editorial writer on all questions of public health, as well as a pioneer along certain paths of neurology. When in 1864 the conditions, sanitary and other, of Poor-law infirmaries led to THE LANCET inquisition, Anstie took the largest part in examining the London infirmaries and wrote the exhaustive report which appeared in THE LANCET of July 1st, 1865. The report was a forcible and clear document, moderation being especially shown in the method of its presentation, for while the general character of the buildings of the 37 institutions was fairly summarised, the population served being in each case given, and while the character of the separate wards and the system of the nursing were thoroughly analysed, there were neither sweeping allotments of blame nor allegations of callousness. Regrettable facts were allowed to speak for themselves. But the fairness of the report is shown most by the fact that it closes with the expressed intention of proceeding in future inquiries to describe briefly particular institutions which "will establish the propriety of the general conclusions and recommendations." These were as follows :—

1. With regard to the building accommodation provided for the sick, the London workhouses may be arranged in three classes, as stated in the body of the report—(1) A class in which the accommodation is irremediably bad, and in which the buildings ought to be altogether abandoned. (2) A class in which, with certain alterations, the buildings might be retained for the treatment of chronic disease and infirmity. (3) A class in which the buildings are capable of being developed into really good hospitals for the treatment of all kinds of disease. In *all* the infirmaries there are great defects as to classification and separation.

2. With regard to the wards, it may be stated that their ventilation is in all cases imperfect, from a deficient allowance of cubic space per bed, and that in many cases this evil is aggravated by essential faults in the construction of the buildings. In a large number of cases their lighting is imperfect. The water-closets, bathrooms, and lavatories are in nearly all cases insufficient, in many very decidedly so. The arrangements for washing the bedridden are nearly always insufficient. The ward management is in most cases insufficient, in many grossly so, owing to the want of good supervision. The bedding and other arrangements for the comfort of patients are inadequate in all but a few instances.

3. The system of nursing is nowhere perfect, and where only few, or no, paid nurses are employed, leads to the bad ward management already noted. Very few indeed of the pauper nurses are qualified for their work.

4. With few exceptions, the quality of the provisions, wines, &c., is good. Greater provision ought to be made for *variety of cookery*, and separate infirmary kitchens should be established.

5. With regard to the diet of the able-bodied, we have at present only to note the fact that there are great differences between the nutritive value in different houses, and to recommend the enforcement of a uniform dietary. The diets of the sick and the extras allowed appear to us liberal. The infirm and chronic patients decidedly require a diet of their own, similar in character to that adopted at the Strand Union, and which they should receive without the necessity of detailed orders from the medical officer.

6. The medical officers are over-burdened with work in nearly all cases. They should be at once relieved of all expenses on the score of drugs and appliances, and of the labour of dispensing drugs. They should be placed on such a footing as to ensure the absence of all interference by the master or matron with their arrangements for the sick, be better paid, appointed for life, &c.

7. With regard to the prevention of epidemic disease, it is highly desirable that there should be wards isolated from the body of the infirmary for the reception of fevers, &c.

FIG. 27A.—FRANCIS EDMOND ANSTIE.

Anstie continued the work for three more years, and the reports will be found informing reading for a student of sociology; but in 1868 he became editor of the *Practitioner*, which had just been started in the particular interest of scientific therapeutics, and although he continued to write for THE LANCET until the day of his death, he took no more part in the editorial management. His death was a tragedy, and occurred at the age of 41 from a wound incurred at a post-mortem examination while he was investigating some obscure cases of peritonitis which had occurred in certain charity schools. He was a martyr to science, whose work had issue in constructive legislation. For his report to our columns on the state of Farnham workhouse led directly to a Government inquiry and proved the starting-point of wide and real reform. In the articles on the Farnham workhouse THE LANCET took the gloves off, holding that the report on metropolitan workhouses, published two years previously, had constituted a warning which had been entirely neglected. The Government inquiry, conducted by two Poor-law inspectors, was protracted, but when their report came it proved to be in the main a justification of Anstie's accounts and the editorial comments upon them. The Government report admitted that the majority of the things brought forward in THE LANCET required the special attention of the guardians, and immediate reforms followed.

JAMES WAKLEY'S STAFF.

It has been indicated that James Wakley was particularly dependent on his staff for the details of medical journalism, whether those were concerned with scientific work or with public affairs. Unlike his elder brother he had held no hospital appointments, and unlike his father he had made no entry whatever into public life. He was never seen at any medical or public function, and, indeed, save by a few intimates, was hardly known by sight. He depended greatly upon his friends, was naturally slow to choose them, but when chosen they were trusted entirely. It is right, therefore, to say a few words concerning three of his well-known collaborators who, as far as internal administration of the paper was concerned, were even more closely associated with us than was Anstie. They were William Tilbury Fox, the famous dermatologist, Harry Leach, the friend of the Mercantile Marine, Christopher Heath, and Robert Brudenell Carter, well known as ophthalmologist, writer, and man of affairs.

Four Well-known Collaborators.

William Tilbury Fox, after a brilliant career at University College, London, began life as a general practitioner in the West End. Later he travelled in the East and, having taken up the subject of skin diseases, became dermatologist to the University College Hospital, resigning a big gynæcological appointment. This was in 1866, and from that time forward until his untimely death in 1879, at the age of 43, he was a regular editorial writer on the staff, and a man to whose general opinions on professional matters great respect was paid. He was so intimately aware of the methods and ideals which characterised the paper that during an absence of James Wakley through illness he was appointed temporary editor, a post which he held for nearly a year. His training and experience had given him a wide range of exact knowledge, and he was keenly interested in all questions of medical progress and reform. But as a member of the Convocation of the University of London he showed himself an energetic opponent of the proposal to admit women to degrees, and in this direction at one time he influenced the policy of The Lancet.

Dr. Harry Leach, like Dr. Tilbury Fox, died at the age of 43. His medical career and his association with The Lancet were largely determined by the fact that his first professional appointment was that of resident physician to the Dreadnought Hospital for Seamen. He proceeded immediately to use the opportunity and material in a close study of scurvy and dysentery among merchant seamen, and he wrote forcible articles on these subjects, which attracted notice in high quarters. The necessity of legislation was admitted, and in the autumn of 1868 the Merchant Shipping Bill was read "to provide effectually for the inspection of antiscorbutics," in which many other measures suggested by Leach, in our columns and in lay papers, for the benefit of the Merchant Marine found expression. Leach was also the author of many of the numerous articles which appeared in The Lancet describing the incidence of cholera in 1866, and both in practice and with his pen was a pioneer of preventive medicine. In 1870 he was appointed principal medical officer of the Greenwich Hospital, a post which he resigned three years later on his election by the Corporation of London to fill the post just created of port medical officer. Leach's work in The Lancet was valuable, therefore, in many directions. He described at first hand methods to be taken against dangerous epidemics; he was an authority on scurvy who was undertaking investigations for the Board of Trade; he wrote a useful medical guide for ships' captains; and in his post as port medical officer he became familiar also with the problems presented by the drainage of the Thames Valley and the water-supply of the metropolis.

It will be seen that of the five chief scientific advisers with whose help James Wakley began his editorship, three—Anstie, Leach, and Fox—all died as quite young men. But Carter lived till over 90 years of age. Robert Brudenell Carter was a general practitioner who in 1854 went to serve in the Turkish Army, and from the spot contributed letters to the *Times* and to The Lancet, summarising his Crimean experiences. He did not come to London until some 14 years later, but he remained a frequent contributor to our columns. He was not successful or happy in a provincial town, but with great resolution decided to obtain the F.R.C.S. before attempting to practise in London the specialty which attracted him. At this point let him tell his own story in a letter addressed to our columns:—

> "My life generally is calculated to encourage hopefulness under adverse circumstances. Up to the age of 40 I was a conspicuously unsuccessful general practitioner in the country. In my forty-first year I decided to burn my very small and shallow boats and to come to London. Within a year I was a leader writer for the *Times*, a constant contributor to the editorial columns of The Lancet, and surgeon to the Royal South London Ophthalmic Hospital. Within two years I was ophthalmic surgeon to St. George's Hospital and my way was fairly clear."

Carter's life is chronicled in a book, "Doctors and Their Work," which is full of good and useful things, but which was written late in life and does not display him as the literary master that he certainly was through some 50 years of his prolonged life. Eloquent, incisive, and bitter with the pen, he could speak in public with the same command of language and high level of style. James Wakley relied on Carter almost too much, and the paper became involved in disputes upon personal matters which damaged its reputation for fairness. He left the staff of The Lancet as the result of some violent articles which he could not justify. Those who remember Carter's work for 20 years on the General Medical Council will recall the many opportunities which his incisive and aggressive speaking gave for quarrels. In debates such things can be adjusted at once, misunderstandings cleared up, and charges rebutted, when no permanent harm follows, but in newspapers immediate reply is impossible.

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Carter left the paper as a sequel to one such episode, but rejoined 25 years later, when the present editor, who had been his pupil, consulted him on certain professional positions which were being much discussed before the General Medical Council, where Carter was sitting as the representative of the Society of Apothecaries. He immediately gave all possible assistance, and from that day until the last decade of his prolonged life he wrote occasional leading articles in The Lancet.

Christopher Heath, known to four generations of students as the author of "Minor Surgery," was a blunt forceful character. He was essentially good-hearted, but made enemies by these qualities. They were displayed in our columns on many occasions and led to awkward situations. But James Wakley recognised in him a powerful assistant, and he and Carter for some years exercised great influence over the paper.

By 1872 the staff of The Lancet had become considerably augmented; the size of the paper had increased with the enormous development of medical knowledge, making it necessary to have different writers able to give authoritative opinions on their special subjects. In addition to the names mentioned, the staff was now notably strengthened by Robert Barnes, James Peddie Steele, and Jeffrey Marston, while Sir John Tweedy, who at the time was only just qualified, was admitted to the councils of the paper. Dr. Thomas Buzzard, whose neurological work has placed him definitely among the pioneers of modern medicine, was also a much appreciated leader-writer, for he was a practised journalist, with a learned and graceful style. Later on, at different intervals, the staff was reinforced by Sir John Williams, Vivian Poore, Henry Power, Dr. Sidney Coupland, Pearce Gould, W. S. Greenfield, and John Curnow. Sir John Tweedy joined the staff immediately upon his qualification—indeed, to be accurate, his early contributions were actually written before he had obtained any diploma—and he undertook from the first a very difficult and delicate appointment, namely, to keep the readers of The Lancet informed upon matters connected with the Royal College of Surgeons of England, and surgical practice in the metropolitan hospitals.

CONTINUITY AND PROGRESSION.

THE scheme of work which James Wakley laid before his staff was twofold. He desired to continue and develop the undertakings of his father—an act of piety which was sometimes embarrassing; and he desired at the same time to keep his columns as open to new movements, scientific or professional, as they had been open during 40 years. This was well shown by the sequels to the Analytical Sanitary Commission, such, for example, as the inquiry into the conduct of lunatic asylums, and by the watchfulness maintained over the actions of the Royal corporations.

The Lancet and the Royal Corporations.

In 1872 the position of The Lancet with respect to the Royal College of Surgeons of England was not any longer one of open warfare; but the general feeling against the constitution of the College had not been abated by the institution in 1843 of the order of Fellows. In 1843 a new Charter was obtained for the College, under which there was instituted a class to be called the Fellows, from whom and by whom the Council was to be elected. The number of the Council was increased to 24, and while the existing members of the old Council were allowed to continue in office for life, provision was made that three elected members should retire annually, so that when no more life members were left it would not be possible for a member to retain his seat for a longer period than eight years without re-election. A further change was effected by this Charter, for it provided that the examiners had no longer to be selected from the Council, but any Fellow, whether on the Council or not, became eligible and for a term of not longer than four years. It will be seen that the Charter, therefore, did meet two of the main charges brought for so many years by The Lancet against the constitution of the College. Although the Council was only enlarged from 21 to 24 persons, it was no longer self-electing, and the old rule that ten out of this small Council must constitute the Court of Examiners was abolished.

The double reason for the creation of Fellows thus became apparent: the new class was to form an electoral college for the Council and also to provide men up to date in their work to carry on the examinational duties. The first body of Fellows was chosen arbitrarily, mainly from among the Members, but within one year from the date of the Charter the Fellowship was closed except by examination, the tests being graded to provide that the Fellows should show by practical and academic acquirements that they were fit men to conduct College affairs, and particularly to examine and train their juniors. The Lancet admitted that the new Charter stood for reforming principles, but found that it was none the less an unsatisfactory and undemocratic arrangement, in that the Council, while retaining all the power, would be recruited from a special body, in the first instance nominated by themselves, while no provision had been made for representation of the Members in general upon the governing body of their College. The higher standard of examination laid down for the Fellowship, it was allowed, provided the College immediately with a properly equipped body of examiners, and did away with the scandal caused by nonagenarians when found examining lads of the age of their grandchildren.

The College continued to come in for criticism also because of the privacy with which its business was transacted, although here the Royal College of Physicians of London was much more frequently and more logically attacked for its "*secreta collegii*." The College, as has been said, escaped the diatribes to which its sister College had to submit in the early issues of The Lancet, because it played so small a part in the life of the general practitioner. In Scotland especially, and to some extent in Ireland, it was more usual for the general practitioner to have obtained a medical degree, but in England a practitioner practised, as a rule, on his diploma from the College of Surgeons or his licence from the Society of Apothecaries. It was not till 1884 that an agreement was entered into by the Royal College of Physicians of London establishing a Conjoint Examination Board with the Royal College of Surgeons of England, and until that date the part played by the senior College in general practice was negligible. But officially the College of Physicians was of high importance, and its habit of keeping all its business, which was presumably discharged in the interests of the constituency and also of the public, entirely secret led to a good many caustic articles. One President, Sir George Burrows, made a definite attempt to intimidate The Lancet, to which James Wakley replied in characteristic style. Some information had been published in The Lancet, through a member of the staff, who wrote the article upon information from persons in authority who did not consider that the circumstances were private. The persons who gave the information on reconsideration believed that no question of privacy arose, and Sir George Burrows was told that the public apologies upon which he insisted would not be given. Succeeding Presidents were less susceptible to the dangers of publicity—indeed, from this time forward cordial relations existed between the College and the paper. (Fig. 28.)

Fig. 28.—Sir George Burrows.

In all the developments of medicine which have occurred during our existence it has been our aim to provide news and comment upon that news, to record all medical discoveries, to give space to the work of those who were engaged in promoting them, and to hold the balance between those who thought criticism to be criminal and those who thought that the world would be no better off for the new work. To give any summary of the forward movements which in their earlier forms originated in The Lancet, or were noticed in it, would be in considerable measure to give a summary of the journal from its issue until to-day. Certain prominent communications which marked the early years of the paper have been singled out for notice because they became important in the years which followed, owing to developments along the indicated lines. But we have now reached the era of the greatest medical events of the nineteenth century, which have revolutionised the whole of our science—namely, the discovery of bacteria, leading to the introduction of antisepsis, while we have passed by a discovery of nearly as high a therapeutic importance—namely, the introduction of anæsthetics. The way in which these great movements were received by the paper is a running comment upon its conduct over an extended period, and at these points the summary of our work is brought down to to-day.

ANÆSTHETICS.

Most things that were new in the medical world were being sent to The Lancet for publication at the time that the anæsthetic action of ether was revealed—especially was this the case with English or French work. The fact that something new was arriving would emerge from reports from institutions or from learned societies, when fuller information was at once solicited and obtained.

The news from Boston of W. T. G. Morton's successful administration of ether on Sept. 30th, 1846, in dental and surgical operations reached England in December of that year, when its practical importance was immediately tested and appreciated. In London, on Dec. 19th, James Robinson, in his dental consulting room, and on Dec. 21st Robert Liston, at University College Hospital, operated on patients under ether anæsthesia, and lost no time in chronicling their successes, the letter from Liston, published in The Lancet of Jan. 2nd, 1847, having been written *on the very day* of the operation.

That issue of the paper contains some other interesting documents relating to the early surgical operations performed during insensibility; they include, through the courtesy of Dr. Frank Boott, a paper read by H. J. Bigelow before a learned society in Boston, on Nov. 9th, 1846, describing the technique and discussing its application, and also a detailed description by Boott himself of the dental operation performed on Dec. 19th in his presence by Robinson. An editorial pronouncement in the same issue of The Lancet left no doubt of the fundamental importance of the discovery, the development in various branches of medicine and surgery of "this most valuable discovery " being foretold. An attempt to patent the discovery in the name of its alleged joint inventors, C. T. Jackson, a chemist, and Morton, was denounced as preposterous, if not legally impossible, in an editorial article a fortnight later. "The thing is far too noble to be clogged with a mere commercial transaction," said THE LANCET, which had been already able to chronicle the performance of operations under ether at five London and five provincial hospitals. Illustrations of different forms of apparatus for ether administration appear in nearly every issue of THE LANCET during the early months of 1847, one of the first being that devised by Dr. John Snow, whose subsequent researches into the physiology of inhalation anæsthesia, published largely in THE LANCET, formed a valuable addition to the early literature of the subject.

It will be convenient to give dated references to the communications alluded to. Under the general heading of " Operations without Pain," a series of special reports, with full details of cases, from hospitals throughout the country began in THE LANCET of Jan. 16th, 1847, and continued for 13 successive weeks. An elaborate questionnaire was prepared and addressed in April, 1847, by Thomas H. Wakley, the eldest son of the Editor and then surgeon to the Royal Free Hospital, to the surgeons of London hospitals, on the grounds that it was " high time the profession should be put in a position of authentic information relative to the action of a remedy which has already produced such an unparalleled influence in the practice of surgery in this country." The peculiar applicability of the new discovery to general surgery was early recognised in THE LANCET, but, even in January, 1847, attempts to employ it in medical cases, such as tetanus and rabies, were deprecated on physiological grounds. Its effects on surgical shock were discussed and its use in operative midwifery prophesied. The prophecy was even then being realised, for by February, 1847, ether was already in use in obstetric operations by Prof. J. Y. Simpson in Edinburgh, by Prof. E. W. Murphy in London, and by Baron Paul Du Bois in Paris. (See THE LANCET, 1847, i., 228 and 247.)

The unsuitability of ether for cases with bronchitis was being established by our contributors (1847, i., 1210) and resuscitation by means of oxygen (ibid., 371) was being practised, while on April 17th, 1847, we were able to record examples of the practical application of anæsthetics to jurisprudence, in distinguishing real from feigned disease.

The attitude of the Editor of THE LANCET, with regard to the rival claims springing up weekly for the honour of introducing the new weapon, was an eminently sane one. In a review (1847, i., 1284) of what was apparently the first book (by J. Robinson) to be published on the subject in this country, the issue was clearly stated. " Many persons have suggested certain sniffings and breathings, and have employed them in private in a few slight cases ; but these we may pass by as unworthy of notice—certainly not detracting in the least degree from the praise and honour due to the American originator, whether that originator be Dr. Morton, Dr. Jackson, or Mr. Horace Wells, the last claimant." A few weeks after this pronouncement we published documentary evidence substantiating the claim of Horace Wells for the use of nitrous oxide gas for tooth extraction prior to the work of Morton. At this time the name of Crawford Long, who apparently preceded Wells, was still unknown in this country.

Meanwhile, other gases came into use. In our foreign news columns, which incidentally gives evidence of service by well-informed correspondents in various centres of Europe, especially in Paris, we find a report (THE LANCET, 1847, i., 411) of a discussion at the Académie de Science, Paris, where Baron Flourens demonstrated that hydrochloric ether (ethyl chloride) had anæsthetic properties similar to those of ether. The next discovery recorded was a British one, and took the form of an original article published in THE LANCET of Nov. 20th, 1847, by Simpson (Fig. 29), on " A New Anæsthetic Agent More Efficient than Sulphuric Ether," followed three weeks later by details of nine obstetric operations under the said agent, known as chloroform. Prothero Smith and Murphy also recorded their experiences with chloroform in our columns in November and December, 1847.

While it was obviously much too soon to attempt to assess the relative merits or uses of the rival anæsthetics—and indeed this task has hardly yet been completed—editorial pronouncements at this period left no doubt that differences were already beginning to be recognised. In THE LANCET of Jan. 1st, 1848, Thomas H. Wakley was able to publish a record of 100 experiments on different animals performed by himself with ether and with chloroform, with the assistance of Erasmus Wilson, described as " one of the best physiologists of the day," and " that scientific and practical chemist, Mr. Bullock," in whose laboratory the drugs were manufactured. T. H. Wakley's conclusions, quoted again in an editorial comment on the first human death from chloroform, reported in our columns on Feb. 5th, 1847, was that "of the two agents in question assuredly the more dangerous of the two will be found in the vapour of chloroform."

This prophecy was indeed soon realised, and led to a reaction against the use of the newer drug in favour of ether. During the next 20 years the disadvantages of pure chloroform were made further manifest by many considered articles in THE LANCET, and in 1864 a committee of the Medico-Chirurgical Society was set up to consider the whole question from the physiological, therapeutical, and toxical standpoints. At this period we chronicled the fact that the resident anæsthetist was beginning to be an institution at the big teaching hospitals, and that " Mr. Clover's admirable apparatus," the first to register percentages of chloroform, was coming into general use, this apparatus being employed by the Medico-Chirurgical Society's committee in their investigations. The report is published substantially in THE LANCET

(1864, ii., 49 and 69) and the mixture of chloroform, alcohol, and ether (A.C.E.) recommended by the committee found favour till comparatively recent times, when the alcohol was eliminated and the C.E. mixture retained in common use. Meanwhile the use of pure ether was brought back into popularity by the introduction of Clover's inhaler. John Clover was a prolific inventor, and suggested the aspiration of the bladder after lithotrity years before Bigelow. His growing distaste for the administration of pure chloroform led him to experiment still further, and stimulated by the revival by G. Colton of the claims of nitrous oxide, he suggested in The Lancet (1875, i., 33) the use of nitrous oxide to precede ether, and later devised an apparatus to administer successively N_2O and ether. It was this Colton to whom Horace Wells originally owed his inspiration to use nitrous oxide in 1844. Twenty years afterwards Colton re-established the gas in fashion in Paris. In 1868 we had occasion to comment on a discussion of the properties of nitrous oxide at the Medical Society of London (which met even then on Mondays) and to describe a demonstration of its administration at St. Bartholomew's Hospital and at the Dental Hospital. Our comment was that while the agent as used for the process of extracting a tooth was certainly a success, the effects did not give rise to much expectation that the gas was at all likely to replace chloroform in any but the very shortest of operations. This view, indeed, proved correct, since not until 1899, after the publication in our columns by Sir Frederic Hewitt of a preliminary report on the anæsthesia produced by the administration of mixtures of nitrous oxide and oxygen, did the method come into general use for major operations, and not until the investigation of Crile and his school in the late nineties did it become really popular.

There was now, by the last quarter of the nineteenth century, a selection of anæsthetics to choose from, and it became desirable once again to attempt to estimate the physiology of anæsthesia with special reference to the toxicity of the individual substance used. A commission with this object was established by the British Medical Association, who issued a report in 1878, and two other commissions were financed by the Nizam of Hyderabad in the early nineties. In view of the extreme complication of our modern views on the physiology of anæsthesia, it is hardly surprising that these reports gave some contradictory results and were subjected to much criticism from physiological experts. It was left to The Lancet to revert to the clinical aspect, which had for the time being been rather lost in animal experimentation, and in the early months of 1893 we were able to publish the outcome of a special Lancet Commission appointed to investigate the subject of the administration of chloroform and other anæsthetics from the clinical standpoint.

The history of that investigation was as follows. In 1889 the Nizam of Hyderabad wrote to The Lancet through the surgeon at the Residency, the late Colonel Edward Lawrie, I.M.S., to ask that a representative of the paper should be sent out to repeat the experiments upon the administration of chloroform which had been performed by a committee appointed by His Highness's Government. The Nizam's Government placed the choice of a scientific man to repeat the experiments, and make any others that might suggest themselves, in the hands of The Lancet, and enclosed a fee of £1000, together with an invitation from the Government to be their guest in Hyderabad. Lauder Brunton was nominated, and he accepted the commission in the rather delicate circumstances that the work of the Hyderabad Committee had already come to certain conclusions with regard to the action of chloroform which were at variance with the views expressed by Brunton in his pharmacological writings. Brunton's contributions to The Lancet had been for many years frequent; indeed, since he delivered the Goulstonian Lectures on "Pharmacology in Relation to Therapeutics" he had regularly assisted us. All schemes in favour of national health, of school hygiene, or of proper military training had in him a stalwart advocate. In this last connexion his familiarity with the German professional world had led him for some years to believe that war between this country and Germany was inevitable, and from a letter published in The Lancet it came out that in days gone by Sir Douglas Haig and Brunton had discussed the circumstances of its occurrence. In the report of our Commission details of the cases were set out in tables under appropriate headings, and though the document was printed 30 years ago, the conclusions, which are set out fully below, would be substantially endorsed by expert opinion at this day. The conclusions were :—

1. That the death-rate under anæsthetics heretofore has been unduly high, and may by improved methods and greater care be lowered.

2. That ether, when properly given from an inhaler permitting graduation of the strength of the vapour, is the safest anæsthetic in temperate climates for general surgery.

3. That nitrous oxide gas should be employed for minor surgery and should replace chloroform in dental surgery.

4. That chloroform, when given by a carefully trained person, is a comparatively safe body, but is not in any case wholly devoid of risk.

5. That no age or nation is free from danger under anæsthetics.

6. That the perils of anæsthetics, however slight, demand that the undivided attention of a duly qualified and trained medical man should be given to the administration of the anæsthetic.

The work appeared in the columns of The Lancet in 1890, being edited with extraordinary care by Dr. Dudley Buxton, and was afterwards produced in volume form. It is interesting to note that whereas the scientific aspect of the subject was altered by the discovery of the occasionally delayed effects of chloroform poisoning, to which attention was first called in The Lancet (1894, i., 193) by Leonard Guthrie, the conclusions reached by this most exhaustive research into clinical records throughout the Empire over a long period of time by our Commission have been substantiated by subsequent experience.

Of more recent years the advances in general anæsthesia have been perhaps less striking. Early in this century W. T. McCardie revived interest in the anæsthetic properties of ethyl chloride by reporting first a few cases and then a series of over 600 under general anæsthesia induced by ethyl chloride, thus bringing to general notice in this country an anæsthetic which had hitherto been used chiefly abroad. Intratracheal ether was introduced in 1909, but did not come into general use in this country until a few years later. In a review of various methods and apparatus at the end of 1911 we quoted mainly American and foreign authorities, and were thus able to keep English workers in touch with a valuable technique.

In Europe scopolamine-morphine anæsthesia (twilight sleep) was also beginning to find favour in certain cases; its merits in labour were extolled by C. J. Gauss of Freiburg, and were discussed in THE LANCET by Dr. G. B. Buchanan in 1906. This method of producing *general* anæsthesia by means of the hypodermic syringe has advanced in efficiency and popularity, especially for ear, nose, and throat work, but the serious development of *local* anæsthesia was dependent on the perfection of the hypodermic syringe in 1853 by Alexander Woods. Local anæsthesia by means of surface applications was much older. In June, 1848, T. Nunneley, of Leeds, published in THE LANCET the results of attempts to use ether, chloroform, and certain other volatile drugs in this way, while a week or two later Simpson records in our columns a further series of experiments on the same lines. The production of local anæsthesia by means of cold was recorded by James Arnott in THE LANCET (1847, ii., 98 and 287), using ice and salt, but this method was only capable of a wide application after the invention of the ether spray by B. W. Richardson early in 1866. This was at once recognised by THE LANCET as a device whose "application would evidently be of the most valuable and beneficent utility."

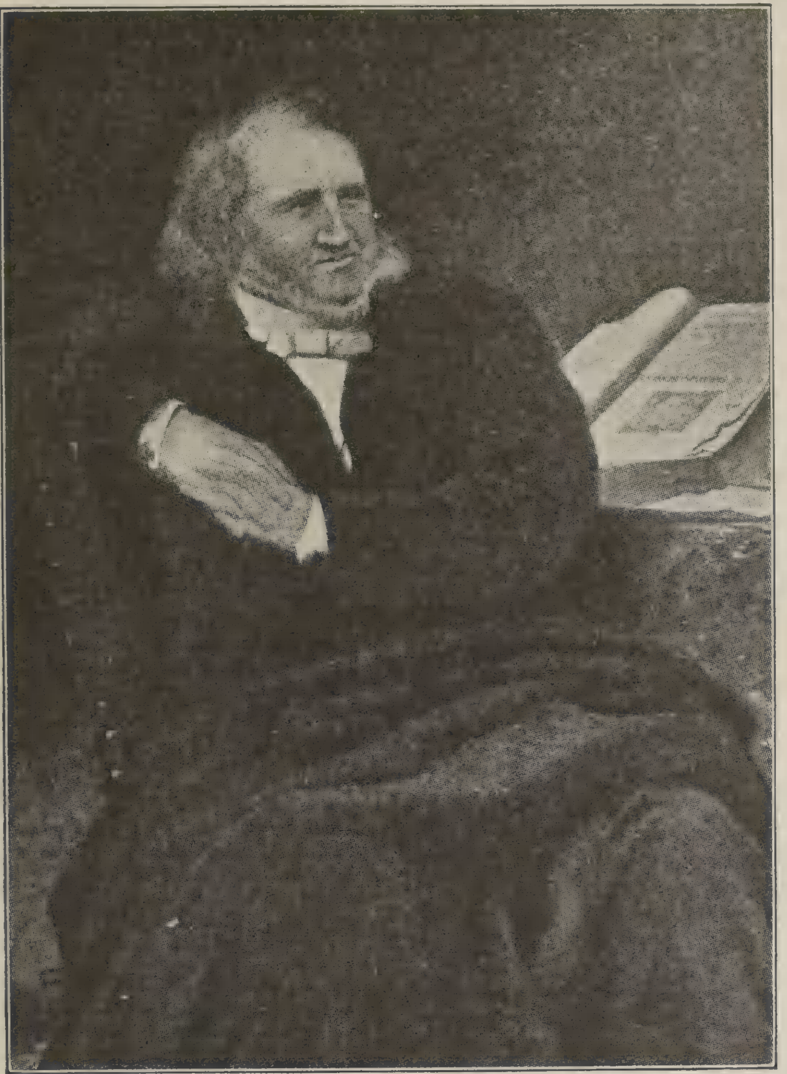

FIG. 29.—SIR JAMES Y. SIMPSON.

The discovery of cocaine in 1857 was the next landmark, but it was not until 1884 that Koller in Vienna used this drug in eye operations. Of this important event we received and published immediate information, and our readers were not slow to give the drug a trial. For the rest of the year (1884) our correspondence columns constantly recorded British experience of its uses, and, none too soon, of its dangers. In the last decade of the century less toxic derivatives of cocaine began to be substituted, and infiltration and spinal methods of anæsthesia were evolved. In THE LANCET (1901, i., 137) we reviewed the work of Bier, Corning, and Tuffier in spinal anæsthesia, and our foreign correspondents kept us well posted through the following years with developments in this art. The methods of Crile did not gain much attention in this country till early in 1913, when we published an elaborate article from his pen. His anoci-association theory tended somewhat to reconcile the two schools of anæsthetic practice, since he advocates spinal anæsthesia combined with inhalation of nitrous oxide. The last-named gas, combined with oxygen, proved peculiarly suitable for war surgery, and led to an extended use of this combination in civil practice. Of recent years advances in anæsthetics have been due rather to general improvement in technique than to any startling changes in drugs or procedure. The improved status of the modern anæsthetist, who is now in an increasing number of hospitals a valued member of the honorary staff, is a corollary of the development of the specialty. It is hardly necessary to add that we have always insisted on, and are even now again urging (see The Lancet, 1923, i., 910), the recognition of the anæsthetist as a most important member of the operating team, to whom more consideration should be given in the event of a fatality—now, happily, a rare occurrence—and more credit for his share in the common successful issue.

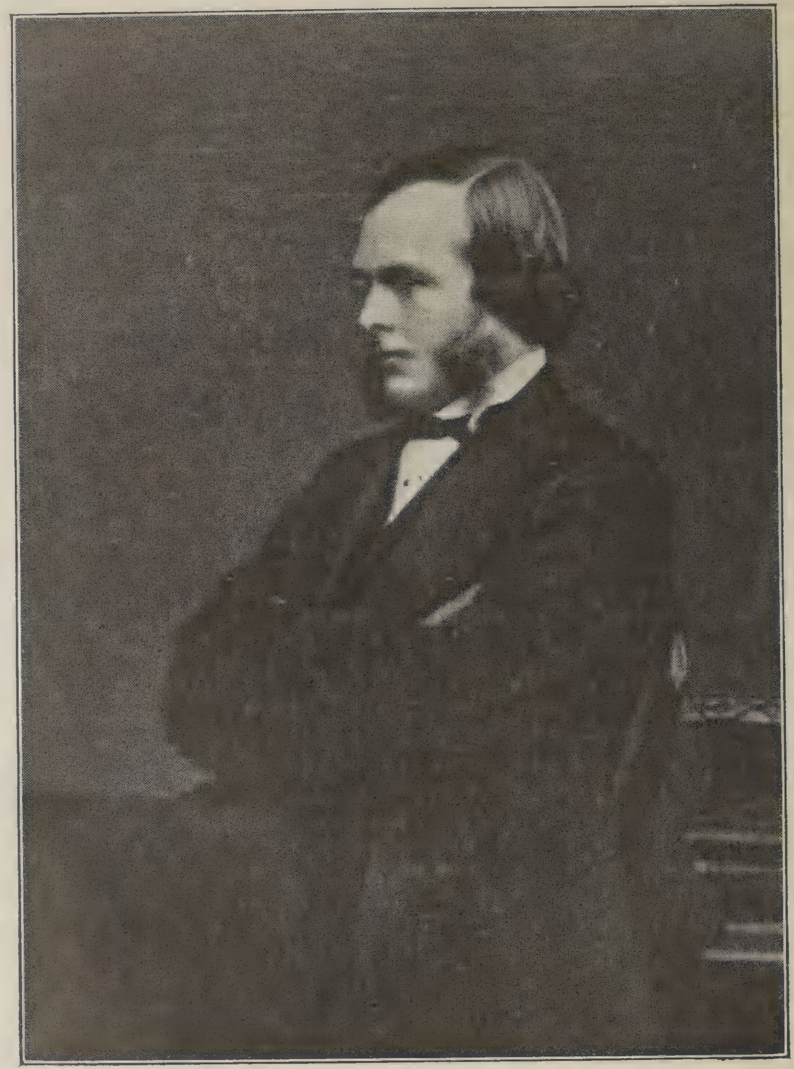

Fig. 30.—Joseph, Lord Lister.

THE FIGHT AGAINST BACTERIA.

Antiseptics.

The Lancet was the journal selected by Joseph Lister (Fig. 30) for the first publication, in 1867, of his method of treating wounds on antiseptic principles. It is almost impossible nowadays to realise the conditions of surgical practice before these principles were established. In the graphic words of Sir Hector Cameron: "Every wound discharged pus freely and putrefactive changes occurred in the discharges of all, producing in the atmosphere of every surgical ward, no matter how well ventilated, a fœtid sickening odour, which tried the student on his first introduction to surgical work just as much as the unaccustomed sights of the operating theatre. It is hardly necessary to add that fatal wounds, diseases, and complications were never absent at any time from the hospitals of that day."

The steps of Lister's life are well known. After a distinguished career as a student at University College Hospital he qualified in 1852 and served as house surgeon to John Erichsen (Fig. 31) in London, and later to James Syme (Fig. 32) in Edinburgh. He was elected successively to the chair of Surgery at Glasgow in 1860, to the professorship of Clinical Surgery in Edinburgh on the death of Syme in 1869, and to King's College, London, in a similar capacity from 1877 to 1893, when he retired from active practice, though he lived till 1912. It was during his years at Glasgow that the terrible after-results of surgical intervention, especially that conducted in hospitals, led to various drastic suggestions. These included (1) demolition of hospitals every two or three years, and (2) the treatment of patients in a constant draught—the current assumption being that it was the hospital atmosphere which led to the onset of redness, swelling, heat, and offensive suppuration and sloughing, if not actually pyæmia, which were almost the normal sequelæ of operations.

Lister described in The Lancet (1867, i., 326) how, pondering over "the frequency of disastrous consequences in compound fracture, contrasted with the complete immunity from danger to life or limb in simple fracture," and searching for the cause of the decomposition of living tissues exposed to the air without protection, he realised that "a flood of light has been thrown upon this most important subject by the philosophic researches of M. Pasteur, who has demonstrated by thoroughly convincing evidence that it is not to its oxygen or to any of its gaseous constituents that the air owes this property, but to minute particles suspended in it, which are the germs of various low forms of life." Applying Pasteur's discovery to the treatment of wounds, Lister concluded with admirable logic that "it appears that all that is required is to dress the wound with some material capable of killing these septic germs, provided that any substance can be found reliable for this purpose and not too potent or caustic." He continued by describing the reasons which had induced him in 1865 to choose carbolic acid as the antiseptic to be tried, its local sedative action being one of the reasons, and gave in this and four subsequent issues of THE LANCET detailed accounts of the cases of compound fractures, abscess, &c., in which he had successfully used this method—his restraint and absence of self-advertisement in what he rightly regarded as a most important innovation being noticeable. In the last of this series he described the application of his treatment to a case of psoas abscess in a woman, aged 25, explaining that "here the essential object is to guard against the introduction of particles from without, at the same time that a free exit is afforded to the constant discharge of the contents."

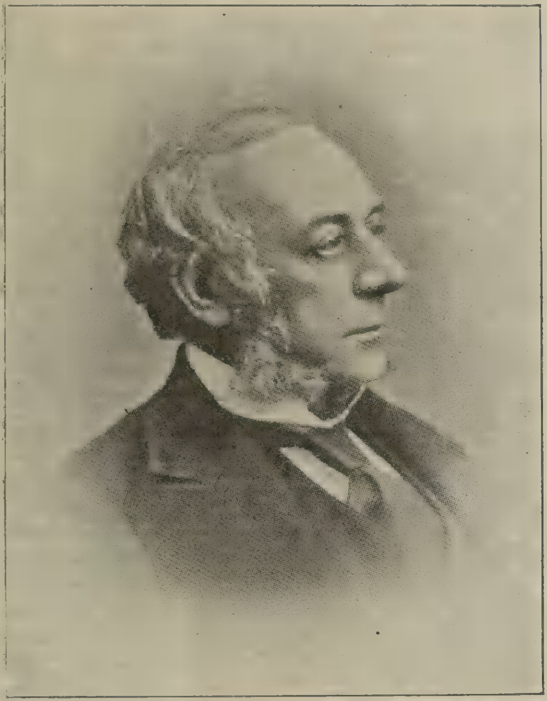

FIG. 31.—JOHN ERICHSEN.

We have quoted Lister's actual words in these papers, because in later controversies on his methods the real issues on which his treatment was based—in essentials the principles guiding surgery to-day—were overshadowed, and even Lister himself appears to have lost sight of them in the heat of defence. For example, he resented hotly the suggestion by Sir J. Y. Simpson (THE LANCET, 1867, ii., 546) and others that he was not the first to use carbolic acid in the treatment of wounds. Now it did not matter if he had been anticipated in the empirical use of carbolic acid as a dressing of wounds: of the principle guiding its choice he was the originator. Much more important than the previous use by Lemaire and others of this dressing was the pioneer work of I. P. Semmelweiss in 1847–49 on the ætiology and prophylaxis of puerperal fever—work which was unknown to Lister for many years after his own researches had been published, but which received generous appreciation from him when it was brought to his notice.

What did THE LANCET make of Lister's revolutionary ideas? In our issue of August 24th, 1867, an editorial article, after setting out his principles and describing his practice, credits Lister with a "series of observations which, in point of surgical importance and fine perception of physiological processes, deserves the closest attention of all surgeons and of all physiologists," and states that if his conclusions should be confirmed by further experiment and observation "it will be difficult to over-rate the importance of what we may really call his discovery." This was high praise of such a heretical doctrine and practice, and was not popular with many highly placed surgeons. As the year 1867 progressed, the principles on which Lister worked became more and more clearly defined, and two further contributions to our columns on the Antiseptic Principle in the Practice of Surgery (1867, ii., 353) and Illustrations of the Antiseptic System of Treatment in Surgery (ibid., p. 668) contain many suggestions, founded on basic conceptions of the germ theory of disease, that might well find a place in any modern text-book. The discredit which it was attempted in certain quarters to throw on Lister's theory, when many years later he discarded after a lengthy trial the

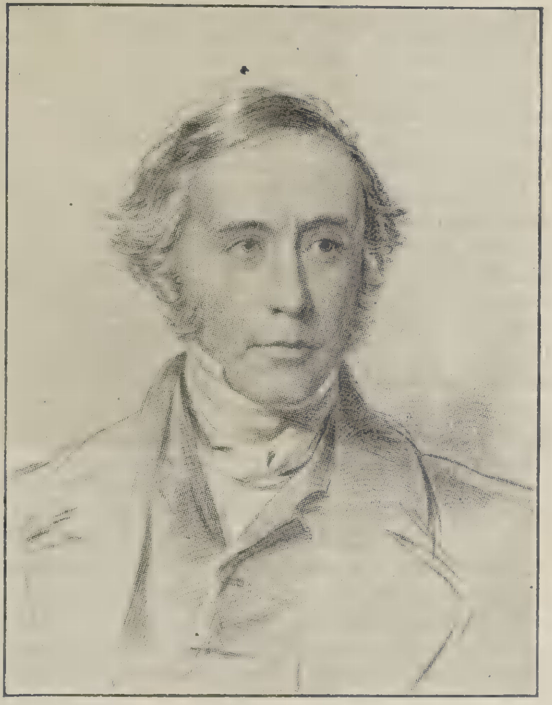

FIG. 32.—JAMES SYME.

carbolic spray, was unfair indeed in the light of his early complete grasp of the essential facts of inflammation, as set out in the second of the papers. He says: "Admitting, then, the truth of the germ theory, and proceeding in accordance with it, we must, when dealing with any case, destroy in the first instance once for all any septic organism which may exist within the part concerned; and after this has been done our efforts must be directed to the prevention of the entrance of others into it. And provided that these indications are really fulfilled, the less the antiseptic agent comes in contact with the living tissues the better, so that unnecessary disturbance from its irritating properties may be avoided."

From the beginning Lister, bearing principles well in mind, was constantly modifying his practice. He soon found, for example, that undiluted carbolic acid in the purification of a recent wound caused superficial sloughing, and after testing and discarding an oily solution 1 in 4, found that a 5 per cent. watery solution was strong enough. In view of the antiseptic-aseptic controversy, it is interesting to observe that Lister recognised the evils of antiseptics in damaging the tissues, and in 1868 was attempting to meet them with the exclusion of germs by mechanical means, such as rubber, or at least to protect the wound by oiled silk. In the search for suitable dressings he discarded in turn putty made from carbolic oil and chalk, paraffin wax and lac plaster, all designed to hold the carbolic acid and prevent its being washed away by discharge, for those which freely absorbed discharges. The first of his absorbent dressings was carbolised gauze, and later cyanide gauze was favoured. The facts will be found in THE LANCET as they occurred.

Lister's methods did not gain ground in London with rapidity, and we allowed ourselves some editorial sarcasm at the expense of London surgeons who had no success therewith. Mr. P. R. Cresswell reported in THE LANCET of August 29th, 1868, that "the use of carbolic acid in the treatment of wounds has created quite a revolution in the surgical practice at Dowlais Iron Works," where 8500 men were employed. We commented the next week on Mr. Cresswell's excellent results, adding: "And yet Mr. Lister's treatment does not find much favour in London. Are the conditions of suppuration different here from those in Glasgow or Dowlais? or is it that the antiseptic treatment is not tried with that care without which Mr. Lister has always pointed out that it does not succeed?"

As Thomas Wakley had done in the matter of anæsthetics 20 years previously, the son now acted. James Wakley was not long satisfied with impressions, but took steps by inquiries at various London hospitals to ascertain the opinion formed by surgeons on its use. As a result of these inquiries, by Nov. 14th, 1868, he was able to record that Lister's method, "sometimes with modifications at the fancy of the surgeons, has been pretty extensively tried at the London hospitals." It does not surprise us nowadays that at St. George's Mr. Rouse "finds the proportion of one part to forty of water too strong as an application for chronic ulceration of the legs. It appears to inflame the neighbouring skin. He now orders a lotion composed of two drachms of carbolic acid to one pint of lead lotion, which he finds very useful." Surgeons at St. Bartholomew's, Guy's, Middlesex, and King's College Hospitals submitted varying reports in the concluding months of the year 1868, some enthusiastic, others damaging.

Meanwhile, suppuration being so much reduced in his hands, Lister's own attention was being turned to ligature material, for with the control of sepsis and absence of sloughing, the conception of reliable ligatures which would eventually be absorbed and organised began to intrigue him. In 1869 he published in THE LANCET a note on the Ligature of Arteries on the Antiseptic Principle, wherein he described his reasons for experimenting on these lines, the preparation of antiseptic catgut and its advantages as ligature material. We pointed out in an editorial comment (1869, i., 503) that whereas it was the custom to regard the ligature as a foreign body, more or less irritating, exciting suppuration and only fit to be roughly removed by the surgeon, "Prof. Lister's experiments lead us to think of a ligature as capable of being absorbed as dead tissues are absorbed, or encapsuled as a metal bullet might be, or incorporated with the tissue of the artery." We called attention in the same article to the discrepancy between Lister's own results and those of certain others attempting to use his methods. This was a useful comment, as it inspired Mr. E. R. Bickersteth, of Liverpool, among others, to recount in our columns his own good results, and to record the first cases in which the antiseptic catgut suture had been successfully used on the human subject for tying an artery in its continuity. (THE LANCET, 1869, i., 743, 811.) Various reports followed in which the inefficient action of catgut ligatures was mentioned. These caused much controversy. Failure was attributed by the friends of Listerism to imperfect preparation of the catgut supplied, and the reports were useful in that they stimulated Lister to study and improve methods for the sterilising and preparation of catgut.

A reformer of Lister's outstanding honesty could not fail sometimes to offend. The resentment aroused by his not altogether tactful Edinburgh lecture entitled On the Effect of the Antiseptic System of Treatment upon the Salubriety of a Surgical Hospital, which reflected rather seriously on the work of some of his former colleagues at Glasgow, was ventilated in our correspondence columns during 1870. It was impossible to doubt who had the best of the argument. On Jan. 15th, 1870, we pronounced that "Prof. Lister has done good service in publishing his experience of the antiseptic system in the Glasgow wards," and we published during that year a series of important papers illustrating his current work. In January, 1870, Lawson Tait began in our columns the first of a long series of attacks on Listerism, and we returned to the endeavour to ascertain to what extent these methods were being "fairly and crucially tried" in London and Birmingham, the reports received being on the whole favourable.

The modifications of the antiseptic technique introduced by Lister in the early seventies were, however, to test severely the faith of those of his adherents who failed to distinguish between the principles and the current practice of his system, and, moreover, caused much discomfort to his surgical team and possibly some harm to the unconscious patient. We reported the address at the meeting of the British Medical Association in 1871, in which he first described the spray method, whereby operators worked in an atmosphere permeated with carbolic acid. For well over ten years this uncomfortable method was bravely persisted in by Lister, until, indeed, the non-pathogenicity of the bacteria in the air was definitely established. Other innovations of this period were of more permanent value, notably the rubber drainage-tube and the substitution in certain cases of carbolic acid by the milder boracic lotion. The drainage-tube adapted by Lister from that used by Chassaignac in 1859 was illustrated in THE LANCET of March 27th, 1875, and is almost exactly like the tube in use to-day. As to boracic acid, "the new antiseptic" discovered in Sweden, he found it (THE LANCET, 1875, i., 604) in the form of watery solution, "highly efficient and much less irritating than carbolic acid." Already he did not use the spray for every case. For example, he wrote on June 5th, 1875 (p. 788), "I need hardly remark that to operate under the spray when the wound communicates with a septic buccal cavity would be an absurdity. The use of carbolic lotion should also be avoided on account of the irritation which it occasions to the tissues. There is, however, no objection to having the sponges rendered pure by wringing them out in mildly acting boracic lotion."

The acceptance of Lister's doctrines abroad was much more prompt and enthusiastic than in this country. We recorded on June 19th, 1875, that his progress through the university towns of Germany has "assumed the character of a triumphal march." His cause received a setback in London through an unfortunate incident. In the early months of 1877 Lister made a speech in Edinburgh which was not intended for publication, but found its way into the lay press, containing a somewhat tactless depreciation of the methods of London schools of surgery. This gave rise to acrimonious correspondence in THE LANCET and to somewhat severe editorial rebuke. The occasion of the speech was the acknowledgement of a testimonial received from his students, on the rumour that he had been invited to leave Edinburgh for London, and should perhaps have been regarded as privileged. Lister showed no resentment at the editorial attitude, for he continued to send his papers to THE LANCET and, indeed, later in a clinical lecture published in our columns (THE LANCET, 1878, i., 5) confesses that his strictures were founded on misconception of the present methods of the London schools, and expresses his sincere regret that certain expressions used "should have seemed capable of casting the remotest possible slur on the surgeons of the Metropolis." His inaugural address to the students of King's College on the nature of fermentation offered clear experimental evidence of the groundwork on which the antiseptic theories were based. In editorial comment on the address, which is well summarised in our columns, we call attention to the skill with which Lister used diagrams and experiments to illustrate his arguments, unusual in those days, and express our conviction that the scientific world would thank him for his lecture. Later in the year he developed the subject in a "remarkably lucid and well-reasoned address" on Lactic Fermentation and its Bearing on Pathology (THE LANCET, 1877, ii., 9, 21), presented to the Pathological Society of London, where he was received with cordial welcome by a packed meeting of his scientific colleagues. Charles Murchison presided, Burdon Sanderson and Charlton Bastian were most cordial.

Nothing less than a revolution was brought about from this period onwards by the gradual spread of accounts of Lister's successful cases among London surgeons. The attitude of the rapidly diminishing opposition is well shown by an anecdote quoted by Sir Rickman Godlee in his Life of Lister. In October, 1877, Lister performed an "open operation" on a broken patella by wiring the two fragments together, then a novel procedure; and a well-known surgeon said: "When this poor fellow dies someone should proceed against that man for malpraxis."

A clinical lecture on a Case of Excision of the Knee-joint, published in THE LANCET of Jan. 5th, 1878, caused considerable sensation, and another lecture on Antiseptic Surgery, published in our issue of Dec. 20th, marked what may be termed the close of the period during which Lister's basic principles were regarded by responsible people as under any doubt. In a leading article we reviewed the situation and expressed ourselves finally convinced that "Listerism is destined to be the surgery of the future." The battle against prejudice was won. Of the publications of Lister, subsequent to this lecture and until his retirement from active practice, a good proportion were published in our columns, as may be seen in the many bibliographies of his works.

THE DISTINCTION BETWEEN PATHOGENIC AND NON-PATHOGENIC BACTERIA: ASEPSIS.

It remains only to note the alteration in technique—for it was no alteration in principle—which led first to the abandonment of the carbolic spray and later to the gradual replacement of antiseptic by aseptic surgery.

The fundamental change was brought about by the discovery that the bacteria in the air were mainly, if not entirely, non-pathogenic, and that if scrupulous cleanliness were adopted in every instrument, dressing, or finger allowed to touch the wound, incisions into tissues not already infected might be expected to heal by first intention. This ideal was developed by the aseptic school founded by von Bergmann[1] in 1885–86, till it reached the stage well known in modern operating theatres, and there is no sign at present that in civil surgery this procedure is likely to be replaced. In war surgery, however, the antiseptic system still largely prevails. The Carrel-Dakin (The Lancet, 1916, i., 880, and 1916, ii., 800) and the bipp method (The Lancet, 1916, ii.) of antiseptic treatment were but extensions of the Listerian ideal, and, in fact, only one (the hypertonic saline treatment introduced by Almroth Wright, The Lancet, 1915, i., 847) of the many methods of treating war wounds which we had occasion to describe and assess during the war was founded on physiological principles other than those elaborated by Lister. The search for Lister's ideal antiseptic which penetrates the tissues without damaging them, and yet is potent to destroy pathogenic bacteria, is not yet ended.

We have gone very fully into the story of antiseptics because some writers in summarising the magnificent work of Lister have consulted our columns partially and have come to the unjustifiable conclusion that, after having supported Lister enthusiastically at first, we later made his course difficult. It was impossible that the swings back of the pendulum, as they occurred, should not be reflected in our columns, but there was never any attack upon Lister, and many quotations from our columns, made to give colour to the mistaken view, would be found on consultation to be extracted from the reports which had to be published, if true information was to be given, and not from editorial articles.

PUBLIC AFFAIRS AND MEDICAL JOURNALISM.

A HUNDRED years of medical events cannot be told without overlapping or repetition unless regard for dates gives way to the claim for a consecutive story, when big things—such things as make epochs by their revolutionary bearing—are in question. In writing of anæsthetics and antiseptics the wish to complete a section recording the relations of The Lancet to these big things has brought up to the days in which we live a narrative broken off under the editorship of James Wakley.

Disrespect for Personages.

There was a side to that editorship to which attention should be paid as furnishing an example of the influence of circumstances upon a journal founded to remedy the ills under which general practice lay and to raise the doctors of the people to the place which their responsibilities should give them. From the beginning this programme had been carried out with fearlessness and fierceness, with the result that much tyranny and back-sliding in high places had disappeared. It was no longer their official lapses, as presidents or professors, which offered to the leaders of medicine opportunities day by day for demanding apologies or for starting libel actions; instead, strictures were meted out to them for their behaviour in public affairs. The ethical rather than the official demeanour was made the subject of investigation, and James Wakley's aspirations for peace were thwarted by the bitter comments which appeared in his columns when social happenings brought the manners of distinguished persons under the criticism of certain of his editorial writers. It will be sufficient to give two or three examples in illustration.

Shortly after the arrival of Napoleon III. in England a consultation took place between Baron Corvisart, his medical attendant, and Sir Henry Thompson, when the condition of vesical calculus was diagnosed and the question of operative interference discussed. But the symptoms abated, and it was not until Jan. 2nd, 1873, a year and nine months later, that Sir Henry Thompson decided to operate with the general medical and surgical support of Sir William Gull and Sir James Paget. Chloroform was administered by Clover himself and lithotrity was performed. Three days later there were indications that further operation was necessary, but before this could be performed the Emperor died. The post-mortem examination revealed a condition which it was suggested in The Lancet could have been better met by lithotomy, while excerpts were published from the back files of the *Union Médicale* showing that at least three years before the disastrous Franco-German War the Emperor's medical advisers had been perfectly aware of his ominous state. These quotations led to disrespectful comment on the wording of the post-mortem report, inasmuch as the very first sentence contained a suggestion that the conditions found at the autopsy were unsuspected, and could not have been ascertained in the course of ordinary diagnosis. Now Sir William Gull dissented from the finding of the other signatories, and his conduct in so doing was considered by The Lancet to have been a pretence to a superior wisdom, which had only been obtained after the tragedy, and the professional attitude adopted was bluntly condemned.

Later the same physician came in for severe criticism because of certain contradictory statements which he had made in the Bravo case, the stages of which were reported in The Lancet. That case was, and for experts in criminology remains, of extraordinary importance, and, during the whole of the protracted inquest with which the proceedings terminated, the daily journals gave prominence to the matter, and made of it a story of standing interest. A quarrel arose between Sir William Gull and Sir George Johnson with regard to the way in which Gull gave his evidence; the allegation of Johnson was that Gull, having been called into consultation because poisoning was suspected, and having been definitely told by Johnson and his colleagues why he was being consulted, suggested in his evidence that the suspicion of poisoning was due to his own sagacity. The Royal College of Physicians of London, to whom the matter was referred, appears to have taken in essentials much the same view as THE LANCET, although the College opinion was expressed in more courteous terms, and the circumstances formed the text of a great deal of writing. Sir William Gull was roundly told that he ought to give an explanation, but looking at the circumstances at this distance of time we cannot see that any obligation to do so was laid upon him.

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[1] Von Bergmann celebrated the twenty-fifth anniversary of his career as a surgeon in 1885 when he was director of the Kœnigliche Chirurische Universität Klinik in Berlin. In congratulating him we noted the fact that he was engaged on a series of investigations "which are principally a continuation of Lister's inquiries into antiseptics" (The Lancet, Dec. 5th, 1885), and in the course of the next few years were able to chronicle his invention of steam sterilisation and the world-wide spread of his doctrine and practice of asepsis.

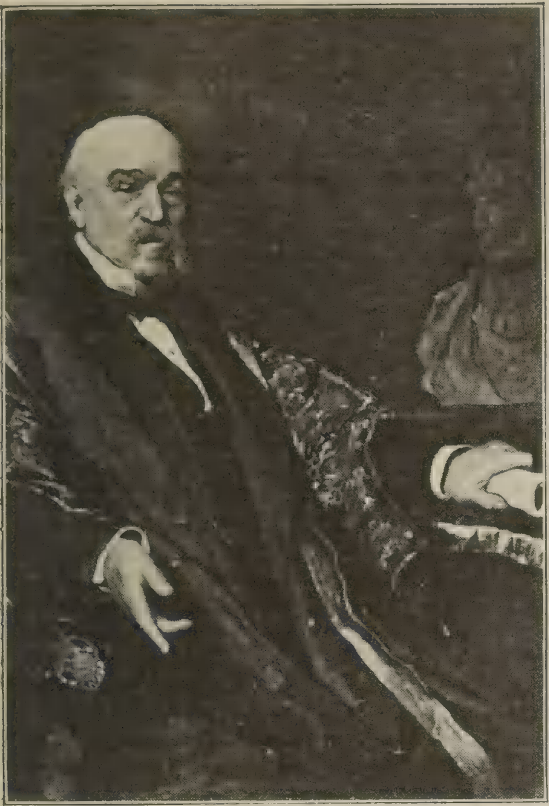


FIG. 33.—SIR WILLIAM JENNER.

The frank way in which the professional conduct of the most successful and perhaps the leading consultant of the world was commented upon in THE LANCET was followed in dealing with the circumstances of Lord Beaconsfield's deathbed, where other eminent physicians were in attendance. It is more than probable that the unfortunate position which medical affairs assumed during the great statesman's last illness, as fully set out in THE LANCET, cost Sir Richard Quain the Presidency of the Royal College of Physicians of London. Both Sir William Jenner (Fig. 33) and Sir Richard Quain were strong candidates for the position, but Quain was generally considered to have the better chance when he decided to take a line different from that adopted by Sir William Jenner in meeting at the bedside a well-known and highly respected physician who included the tenets of homœopathy in his medical creed. Beaconsfield wished to see Sir William Jenner, who had moreover received the Queen's special command to visit him. Quain met Dr. Kidd in consultation, but Jenner declined to do so. There was nothing personal in his action —he took up the line that no grounds existed for consultation between the ordinary physician and the professor of a particularist school. At the election for the Presidency the vote of the Fellows gave Sir William Jenner twelve times the number of votes accredited to Sir Richard Quain (Fig. 34), and for some time the relations between Quain and THE LANCET were strained.

Yet one more instance may be quoted of outspoken writing which had more than a passing effect. A junior surgeon, later a member of the staff of THE LANCET, in the theatre of a London hospital performed an operation in which it was surmised by some that a vessel, not ordinarily in danger, was injured. The surmise was not verified and, most unfortunately, the patient was buried without a post-mortem examination, but one of the senior surgeons to the hospital, who appears not to have been present at the operation, denounced his colleague to the lay authorities of the hospital as incompetent, and, according to THE LANCET, the junior surgeon had received similar treatment on a previous occasion. A furious quarrel broke out, which the staff of the hospital urged should be confined to their own walls; they considered that an interchange of apologies, the senior signing "a mild expression of regret that he did not intimate to the junior his intention to libel him on the condition that the junior should express regret that anything should have seemed to call for inquiry into his surgical conduct" would meet the case. After this summary THE LANCET said that the senior man "had sinned against the very first principles of professional ethics and of ordinary morality." But, alas, the writer of the article impugning the senior's conduct was found himself to have personal reasons

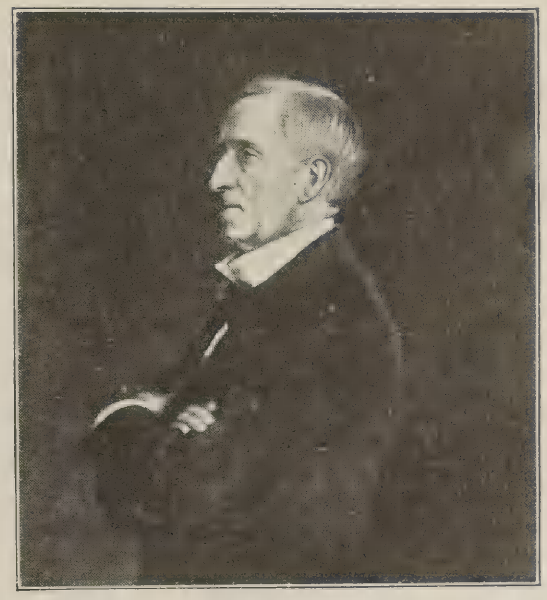


FIG. 34.—SIR RICHARD QUAIN.

for disliking him, and the attitude towards him and towards the staff of the hospital adopted by THE LANCET were so resented by other hospital staffs that, 50 years after the founding of the paper, and at least 30 years after any open quarrelling between the staffs of hospitals and THE LANCET, the paper found itself back again in much the situation in which Wakley was placed at the start of his career. Reports from the London hospitals were not sent to THE LANCET ; those who were supposed to be attempting to obtain information, even of the most strictly scientific sort, for publication in THE LANCET, were warned not to do so ; and some of the interesting publications which appeared in the paper had for a brief period no names attached to them. The action for libel brought against THE LANCET was settled out of court, a considerable sum of money being thus expended, while THE LANCET had to dispense with the services of its most powerful leader-writer.

THE STAUNTON CASE.

A certain number of notorious crimes are chronicled in THE LANCET with great fullness, especially where the medical evidence, as in poisoning cases, has served to determine the issue. Many of these cases have of recent years been made the subject of monographs, and to one such we may call attention because the action of the paper has been much criticised. A review of what actually did happen shows that we were on the side of justice.

In 1877 occurred the celebrated Penge atrocity, when Louis and Patrick Staunton, Elizabeth the wife of Patrick, and Alice Rhodes, Elizabeth's sister, were convicted at the Old Bailey of the murder of Harriet, the wife of Louis. They were sentenced to death by Mr. Justice Hawkins at what appears to have been the first murder trial over which he presided. The capital sentences, however, were not carried out, a result largely due to our efforts made with a remarkable consensus of opinion behind them expressed by a large body of medical men. The squalid story of the Staunton case has been admirably compiled by Mr. J. B. Atlay, in the well-known series of "Notable English Trials" and the details need not be dwelt upon ; but it is worth mentioning, for those who love a sensational story, that the detection of the crime was led up to by a coincidence so remarkable that even a hardened manufacturer of detective fiction might have hesitated to introduce it into his book. Harriet Staunton, the victim, had disappeared from her family ken, when her brother-in-law entered by chance a small shop where he overheard a man, whom he did not know, asking where he ought to register a death of a lady from Cudham. Cudham was the last place from which anything had been heard of Harriet Staunton, and her brother-in-law, having his reasons, followed up the clue and communicated with the doctor. As a result an inquest was held and the arrest, trial, and conviction of the four criminals followed.

Immediately the gist of the long and detailed medical evidence became clear, it was perceived by us that a miscarriage of justice had taken place, owing to the fact that Mr. Justice Hawkins had omitted in his summing-up to give any effect to the medical testimony for the defence, though it had been presented by such unexceptionable witnesses from the clinical and pathological point of view as J. S. Bristowe and J. F. Payne. It would have been impossible to have obtained medical witnesses whose qualities more absolutely demanded that their words should be treated with respect, for they were learned, exact, and experienced men ; a verdict obtained in flat contradiction to their views was almost certain to be one contrary to justice. The point at issue was whether Harriet Staunton had been starved to death or had died of tuberculosis. The proof of criminal neglect of the unfortunate woman was overwhelming, but the judge left the case to the jury as "murder by starvation," while the fundamental proposition—namely, that the deceased had died of starvation—was not only unproved, but was entirely unsupported by the medical evidence. Even the inferences drawn by the medical witnesses for the prosecution were admittedly not warranted by the post-mortem appearances as described by themselves, and THE LANCET took up the ground that it must be impossible to prove murder by starvation without first showing that death had occurred from starvation, and the attempt to affirm that proposition had failed. We considered the issue raised so serious that we asked the medical profession to mark its sense of the emergency by a combined expression of opinion, while making it clear that our view of the situation which we wanted them to endorse, was not suggested by sympathy with the prisoners or a low estimate of their crime. We desired in the interests of justice to place on record a strong belief that the indications offered by a dead body, imperfectly examined, had been misinterpreted, an inference being drawn which the facts did not warrant, but which, on the contrary, they controverted. We invited medical signatures of endorsement. In the same issue of THE LANCET we published a statement by Prof. W. S. Greenfield on the medical evidence of the Staunton case. Greenfield, a member of the staff, was at the time lecturer on pathology to St. Thomas's Hospital, but had already shown the qualities of observation and research, both there and at the Brown Institute, which later gained him so eminent a position in Edinburgh. His submission that starvation alone could not have caused the death of Harriet Staunton was convincing. Some 700 physicians and surgeons, headed by Sir William Jenner, signed a memorial for a reprieve, when Alice Rhodes received a free pardon, and the three Stauntons were sentenced to penal servitude for life.

Bristowe, whose evidence was brushed aside by the judge, was the author of the "Theory and Practice of Medicine," as popular a manual in medicine as Erichsen's book was in surgery. He was one of the best clinical teachers whom the London schools have ever known, and a frequent contributor to THE LANCET. His closest connexion with us, however, was in the early days of his career, when he was in charge of sanitary investigations for the Public Health Department of the Privy

Council before the absorption of that department in the Local Government Board. In 1863 he reported, with Timothy Holmes, on the sanitary condition of the English hospitals. The reports themselves are buried in blue books, but some of their valuable lessons will be found in a statement in our columns from Holmes, and both he and Bristowe for many years kept us thoroughly well informed on institutional matters. In fact, their experiences supplied much of the information which brought home to the second Thomas Wakley the needs of the metropolitan hospitals and stimulated him to his actions in behalf of the Metropolitan Hospital Sunday Fund, now to be described.

We come to a pleasant side of James Wakley's reign when we turn to his constructive policy in the matter of hospital finance, his generosity to Epsom College, and his crusade against impurity in food and drugs. In the last instance what he did was a sequel to work begun in his father's time, and in all three directions he left behind him definite tasks for his successors.

METROPOLITAN HOSPITAL SUNDAY FUND.

The origin of the Metropolitan Hospital Sunday Fund has been the subject of considerable controversy, though of a more friendly nature than usually attends differences of opinion upon questions of priority. In a sense James Wakley was the originator of the Fund which was to furnish a pattern upon which later the splendid organisation of the Prince of Wales's Hospital Fund for London arose. And it is significant that the latter foundation has in no way interfered with the utility of the older movement, with its power of doing good or with the influence of its special appeal.

Before there was any Hospital Sunday Fund in the metropolis a plan for benefiting hospitals in the identical way had undoubtedly been started in Birmingham. Mr. T. B. Wright, editor and proprietor of the *Midland Counties Herald*, broached the subject to Canon J. C. Miller, a well-known Birmingham clergyman, who later became rector of Greenwich. Mr. Wright's suggestion was that the collections taken at every place of worship in Birmingham on a certain Sunday should be devoted to the needs of the medical charities of the city. In 1869 James Wakley determined to undertake the task of making such a method of alms-giving national, and in the year 1872 he succeeded in arousing sufficient interest in the metropolis to launch his scheme successfully. The movement did not spread from London in accordance with the design, though local efforts were noted for a time, especially in the north of England. But from the beginning large subscriptions were received from the provinces to the Metropolitan Fund in recognition of the facts that the hospitals of the metropolis received within their walls patients from all over the Kingdom and that the medical staffs attached to those institutions did work which was in no way confined to the capital.

The part played by Henry Burdett was recognised to the full by James Wakley, as it was Burdett to whom he went when he decided to establish a Metropolitan Fund. When the credit of the establishment of the Fund became a subject of controversy, an historical sketch of the movement, together with the articles which appeared in THE LANCET in its support during the years 1869–72, was written by Burdett and published as a pamphlet. From that pamphlet the following passages may be quoted as both describing the origin of the movement and settling all controversy. Sir Henry Burdett wrote :—

> It was Mr. Wright, the editor and proprietor of the *Midland Counties Herald*, who aroused the late Canon Miller and the people of Birmingham to the fact that collections made simultaneously in all places of worship throughout that town each year in support of hospitals would produce a sum so large as to be remarkable, and results so beneficial to the whole community as to be calculated to ensure for ever to the originators of such a movement the gratitude of many people. Similarly to Dr. James Wakley, the Editor of THE LANCET, chiefly belongs the honour of transplanting the Hospital Sunday movement from Birmingham to Manchester, Liverpool, Dublin, Carlisle, Chester, Birkenhead and many other towns. In the year 1869, when Dr. James Wakley determined to devote himself to the congenial task of making the Hospital Sunday movement national and, if possible, universal by causing it to become popular through the length and breadth of the land, Hospital Sunday was an institution practically confined to Birmingham, where it had been in successful working for ten years.

James Wakley commenced by appealing to the Church itself suggesting that the archbishops and bishops should take counsel together upon this matter and use their utmost endeavours in their several dioceses to establish a Hospital Sunday as one of the permanent institutions of the Kingdom. He asserted that if the Church of England would take the lead, it would be followed with alacrity by the Dissenting community, who are always ready to prove by their action that upon the common ground of Christian charity they are willing to meet their brethren of the Establishment in friendly and emulous coöperation. The moral effect of a nation unifying for public recognition of the claims which the sickness and suffering of those who are not able to pay for medical treatment and care would have upon those whose means are sufficient for their own and others needs would, James Wakley asserted, be huge. The practical result would be that in enabling medical charities to maintain and extend the sphere of their operation by the additional support they would derive from the Hospital Sunday collections, numbers of persons would be prevented from becoming permanently chargeable upon the poor-rates, and thus the tide of advancing pauperism would have at least one of its sources dried up.

> "Dr. Wakley," says Burdett, "found the task he had set himself to perform no easy one ; that the very people whom he wished to benefit were largely apathetic and slow to adopt his views ; and although several of the large provincial towns gradually followed the example set by Birmingham, it was not until after three years' advocacy and a special appeal to Sir Sydney Waterlow on his assuming the office of Lord Mayor in 1872 that any practical impression was made upon the metropolitan hospital authorities or the inhabitants of London. As was remarked in THE LANCET at the time, if these gentlemen were

blind to the advantages which a Metropolitan Hospital Sunday Fund offered, or were too apathetic to take any measures for securing them, it was not reasonable to suppose that anybody else would put the bread into their mouths."

Wakley combated the many objections urged against the new project, and the first meeting of supporters was held in The Lancet offices, with Canon Miller in the chair. On Nov. 30th, 1872, Wakley stated that Sir Sydney Waterlow, the then Lord Mayor, was entirely in favour of a Metropolitan Hospital Sunday Fund and had promised to give it his warmest support. On the same day he reprinted a series of articles which had appeared in The Lancet from 1869 to 1872 in support of the Hospital Sunday movement, which were written by Burdett and Brudenell Carter. The circulation of this pamphlet, followed by the meetings of a representative committee which was specially formed, resulted in a conference of gentlemen, including clergymen of the Church of England, the Archbishop of Westminster, and the Roman Catholic clergy, Dissenting ministers of almost every denomination, members of the Jewish persuasion, the Archimandrite of the Greek Church in London, together with many laymen of all churches at the Mansion House on Jan. 16th, 1873, under the presidency of the Lord Mayor (Sir Sydney Waterlow) for the purpose of forwarding the movement for establishing a Hospital Sunday over the whole metropolis similar to that which had been adopted in Birmingham, Manchester, Liverpool, and other large towns.

From this meeting onwards Sir Sydney Waterlow took charge of the Metropolitan Hospital Sunday Fund, of which he became the active spirit. It is clear, then, that divided honour is due to T. S. Wright, Canon Miller, Sir Sydney Waterlow, and James Wakley as the founders of the Metropolitan Hospital Sunday Fund in Birmingham and London respectively. Wright and James Wakley, by the weight of their influence and official positions, turned the scheme into fact, and James Wakley gave to the Fund £1000 on two separate occasions, while he also left the same sum to the charity in his will.

The following is Mr. Brudenell Carter's story of the actual foundation of the Fund :—

> "When I joined The Lancet staff in 1868," he says, "Dr. James Wakley was editor and he was very anxious to obtain the establishment of Hospital Sunday. He caused several articles to be written on the subject by myself and others, and finally asked me whether I could not do something with the *Times*. I went to Delane on the subject and he said that he was not prepared to commit the *Times* to the proposal, although he thought well of it, but that he would publish every extract from The Lancet with regard to it that was sent to him. We took full advantage of this, and The Lancet almost weekly had a paragraph on the subject, all of them appearing also in the *Times*. About the same time I discussed the question with the Duke of Westminster who was treasurer of St. George's and often there, and also with the Bishop of London, Dr. Jackson, whom I had known before his elevation to the Bench. Both were at first opposed to it, the Duke thinking that the annual collection would withdraw subscriptions, the Bishop that different religious bodies would never be got to combine. In due time all difficulties were overcome and a great meeting was held at the Mansion House for the establishment of the Fund. I went in before the chair was taken, while people were still standing about, and caught the Duke's eye, who beckoned to me. I went up to him and he pointed to the Bishop, who stood near him, and said, 'Here Carter, come and sit between two converts.' I was on the first council of the Fund."

Mr. Brudenell Carter's letter, written 50 years after the event, was a purely personal account of his own share in the movement, and this it will be remembered was very large, for he was one of the principal authors of the numerous articles which appeared in The Lancet advocating the scheme, while he also, from his position as medical adviser to the *Times*, kept the columns of that paper open with steady persistency to the advocacy of the Fund.

The omission of Burdett's name was unfair, and was due to a belated recollection of the strained situation which arose between James Wakley and Burdett when Wakley refused to publish in The Lancet a weekly supplement dealing with hospital and institutional matters, to be edited solely by Burdett. Wakley did not consider it possible then to delegate his editorial authority, and Burdett thought that it was designed to use him for the aggrandisement of The Lancet. The result of their difference was the founding of the *Hospital*, which Carter resented, as he had advocated the hospital supplement in The Lancet.

The first collection was made on June 15th, 1873, when there were 1072 contributing congregations, and the total receipts in London amounted to £27,000. The totals increased with almost steady persistence till 1895, when they reached £60,361, the contributing congregations numbering 1807. In the next three years there was a fall in the total, but after that it steadily mounted again, till in 1922, the last year for which the figures are available, the total stood at £100,889 with 2162 congregational contributors.

Epsom College.

Epsom College was founded by Dr. John Propert, and the movement received from the beginning the warmest support of James Wakley. John Propert's object in founding the school was to assist medical men by educating their sons well and economically. He strove to obtain support to constitute a Foundation of 50 boys, the foundationers to be the children of medical men where circumstances had prevented the children from enjoying the usual opportunities of the sons of professional men. The terms of the Foundation almost implied that the father should be either dead or incapacitated from medical practice. Queen Victoria granted her patronage to the College at the very outset, so that the Medical Foundation was assisted from the beginning by the appellation "Royal." The subscriptions came in fairly promptly, and within two years of the initiation of the movement a part of the institution was declared open, but considerable as the sum at the disposal of the governing body soon became, it was far from adequate to meet the intended expenses, and the columns of The Lancet contained time after time pleas to medical men to add their names to the list of subscribers, some of them written by William Carr and others by Glover. Carr collected over £2000 from old University College men. The proprietors of THE LANCET acted up to their words and sent £1000, and from that day forwards the interests of the College have always been forwarded by the paper. In particular were all developments tending to make of Epsom College a great and general public school fostered and approved, it being seen that the children of one class going to a purely class school would themselves lose half the benefit of English public school education. Further, and taking the development of Eton and Winchester in proof, it was certain that where the best facilities are provided in behalf of a Foundation parents whose children cannot enjoy the pecuniary advantages of the Foundation will send them with great readiness to share in the educational opportunities. It is well known now that Epsom College, though its initial reason was its Royal Medical Foundation, ranks on general grounds with the large public schools of England.

THE MEDICAL ACT OF 1886.

In 1886, the year of James Wakley's death, the Medical Act of that year (49, 50 Vict. Cap. 48) was passed to amend the Medical Act of 1858. During the 28 years under which medical registration and education had been carried on and medical discipline organised under this Act, some weak spots had revealed themselves in its working, while the development of the medical profession had been such that situations had arisen which had not been contemplated by the original reformers. Throughout the whole period we find THE LANCET putting forward arguments which had been employed when the first medical reform measure became law, and to a certain extent the amending Act was in consonance with the views expressed. The state of the medical curriculum had become inchoate from the fact that, leaving the universities apart, the several corporations were able, each without reference to the other, to grant a complete qualification to practise without having held an adequate examination in the three principal departments of medicine—namely, medicine, surgery, and midwifery. The perfunctory nature of the examination, now in one subject and now in another, was constantly referred to in THE LANCET, with the implication that under the original scheme, put out by THE LANCET, such troubles would not have occurred. When the Medical Bill of 1886 became law it had a mixed reception. The way in which revealed defaults were to be met did not seem to many of the more advanced thinkers to be satisfactory, while certain aspirations towards the institution of a universal diploma were brought definitely to an end. The new legislation provided that admission to registration should follow a qualifying examination in medicine, surgery, and midwifery, to be provided (1) in any university where the necessary educational facilities were forthcoming; (2) by a combination of a university with a medical corporation so as to provide these facilities; or (3) by any combination of two or more corporations in the same part of the United Kingdom who by agreeing to hold a joint examination would cover the whole curriculum. Thus were produced the conjoint boards under which the most valuable part of the education of the country is now carried on, and by so doing it simplified and codified the previous system of medical education, and suppressed a great deal of isolated and inadequate examination.

The main fault found with the Act was that the number of examinations and of separate examining bodies still remained far too great, and to THE LANCET it was a disappointment that a well-organised movement for the institution of a one-portal system, which started in 1869, had made no converts in the legislature. The advantages of such a reform were pertinaciously pointed out by the paper. Certain corporations were able to give to their diplomats a complete and legal right to practise medicine in its three branches of medicine, surgery, and midwifery without there being any guarantee that the students were adequately examined in all three subjects. From this fact arose the feeling that a surgical corporation would be well advised to coöperate for examination purposes with a medical corporation and make thus a joint board whose tests should be fully inclusive of the three main headings of medical education. Having got thus far in a scheme of amendment it was logical to include in the movement the universities, and thereby prevent any down-grade competition between the various examining bodies. In this way the idea of one examination board for England, or of three examination boards, one for each division of the United Kingdom, arose, and having arisen took such a powerful hold on the reason of the leaders of medical education that in the late "seventies" a one-portal system as nearly as possible was established. By 1875 one corporation after another and one licensing body after another had approved of a one-portal system and had expressed their desire to coöperate and establish a common examination board. But one by one they raised later some objection to the conjunction, or found at the eleventh hour that by the provisions of their charters they were unable to enter into the combination which they desired. Yet these recurrent impediments were got over, and eventually all legal obstacles were removed. It seemed to everyone that the chief difficulties to a speedy coöperation of the various bodies had disappeared, and that nothing remained, except the settlement of preliminary details, to oppose the formal combination in England of the Royal College of Physicians of London, the Royal College of Surgeons of England, the Society of Apothecaries of London, and such universities as at that time were represented upon the General Medical Council; and this expression of opinion was published in THE LANCET, where every phase of the movement was carefully followed, and where also the temptation to prophesy was fortunately resisted. The Scotch and Irish bodies were not so ready as the English bodies, but the probability is that if the English bodies had been able to come to a working agreement for the establishment of a one-portal scheme for England they would have been followed in the sister divisions of the country. But at the last moment the plans of amalgamation came to nought. One body, and one body only, unexpectedly stood out upon one point, and one point only, and before this dissenting body could be brought again into line the unity of opinion had ceased to exist.

To those who had had the idea of a one-portal system at heart the Act of 1886 was a disappointment, but to-day we can see reasons for other feelings. Undoubtedly the establishment of a one-portal system would have been a great stride towards the erection of a State medical service, and against that THE LANCET was and is firmly opposed.

THE LANCET IN THE 'EIGHTIES.

CLINICAL WORK.

THE output of every paper, which has a reason for its existence and would try to justify it, will be divided roughly into work recorded and work done; and the confining of this *apologia* largely to the latter category is not due to egoism but to necessity. No reasonable summary can be made of the work recorded in our columns, as done by those who have had the conduct and progress of medicine in their hands for a century. It would be useless to detail the important scientific communications which we have published throughout such a period, and even to make any wide selection from them on the score of their permanent value would be impossible over the whole range of medicine. In the chronicle of the earlier years something of the sort has been attempted, for in those days clinical medicine was far simpler, more traditional and empirical, and infinitely less divided and subdivided into special ranges of energy. We have, therefore, recalled as a matter of historical interest the names and writings of those fathers of medicine who published in THE LANCET, almost from its appearance, what proved to be the foundation of later and more systematised knowledge. We have also tried to show briefly how from the middle of last century until to-day our pages have reflected medical accomplishment and medical opinion, as the first was acquired and as the second was established, by telling in some detail how we dealt with two grand factors in medical science, the use of anæsthetics, and the discovery of antisepsis and asepsis.

The rise in the standard of medical education, following the provision of opportunities for students, led to the developments in medical science for which the latter half of the nineteenth century has earned perpetual fame. These in their turn reacted on the course of training, in case of both teacher and taught, causing the range of discovery and invention to extend indefinitely. We have endeavoured to keep pace.

James Wakley died in 1886, and during his tenure of the editorial chair the whole of medicine, as we understand it to-day, came into being. His contributors told of the rise of physiology and its gradual influence on pathology, of the beginnings of biochemistry, and of the influence of Darwin's work on medical aims. They wrote of a surgical technique and pathology, slowly or rapidly being revolutionised; they recorded fundamental advances in neurology, electrology, and obstetrics, and the discovery of the bacilli of tubercle, cholera, and tetanus, and the presence of the hæmatozoon in the blood of malarious subjects. In the year following James Wakley's death came the discovery of the bacillus of Malta fever, and then in rapid sequence we have the arrival of inoculation for rabies, the antitoxin treatment of diphtheria, and the discovery of the bacillus of plague.

The most marked feature in the clinical side of THE LANCET at the latter end of the nineteenth century is the amount of space devoted to the growing science of tropical medicine. In every volume, and often in many consecutive issues, the stories of plague, malaria, sleeping sickness, yellow fever, and kala-azar are related. We were not always the first to announce the discoveries, though that has been our privilege, and full reports of proceedings at international congresses kept us, as well as our readers, true to the bearings. We were certainly advised from the conservative point of view in connexion with malaria, as apparently the fact that the rôle of the mosquito had been definitely ascertained was not acknowledged as telling the whole story until 1900, but in the matter of sleeping sickness, cholera, and kala-azar communications and reports were well up to date and the conclusions quickly arrived at. On the discovery of the Rontgen rays the immediate developments in diagnosis and treatment which would follow thereon were foretold. It may not have been a very remarkable prophesy, but from the purely journalistic point of view it has been interesting to find that the first pathological radiograms to be published were in our pages.

In 1903 came the demonstration that sleeping sickness is transmitted by the tsetse-fly, and two years later the parasite of syphilis was discovered, leading up to the rational treatment of that human scourge.

In returning here to the story of ourselves, enough has been said to show that at James Wakley's death the scientific and clinical departments of the paper were congested with the mass of work, developing in all directions, of which a weekly review had to be made.

THE CO-EDITORSHIP.

The embarrassment in telling a consecutive story has again become apparent. In the description of the scientific discoveries of the 'eighties a jump ahead has been made of the domestic chronicle to which we now return.

The situation which arose at the death of the Founder of THE LANCET was more or less repeated upon the death in 1886 of his successor and youngest son, for just as James Wakley had assisted his father for some three or four years before taking up the editorship, so Thomas Henry Wakley, the Founder's eldest son, and Thomas Wakley, junior, the Founder's grandson, had been engaged in the editorial duties before the chair was vacant. So that on the death of James Wakley there stepped into his place as joint editors his elder brother, who had been, as manager of THE LANCET, associated with all the business side of the journal for 20 years, and his nephew Thomas Wakley, jun., who had learned the editorial routine from his uncle, and from the very competent staff which James Wakley had got around him. The majority of these continued their coöperation, and there was no break whatever in the policy of the paper or in the manner in which that policy was carried out. The most marked feature of the period was the steady increase in the size of the paper, indicating the directions in which evolution had taken place in the practical side of journalism—medical as well as lay. Speaking generally, for the first 30 years of the life of THE LANCET it was difficult to obtain medical information because publicity in its columns was resented and feared by a great many institutions and individuals, and this feeling was reflected in the reluctance of some authors to communicate their work to the paper. During this period, therefore, all the information in THE LANCET had to be worked for, and the fact that most of the important proceedings at institutions and societies were reported, and most of the scientific communications which really made medical history were published, form a proof of great determination. During the next 30 or 40 years the position gradually, and at last rapidly, altered. The violence and extravagance of the early days were seen to have been honest if sometimes extremely disagreeable methods for securing reforms, and as the evils complained of were proved to exist the remedies suggested were more or less adopted, and in proportion as they materialised the abuses disappeared. As hospital organisation improved and as efficiency was made the one great test for admission to the staffs, the necessity, as the first writers in THE LANCET conceived it, of abusing the medical charities faded away. When the system of education improved and the reforming Acts of Parliament got on to the Statute book the patent reasons for violent criticisms of the Corporations disappeared also, but it must be admitted that while systems and institutions were treated with the increased respect which they deserved individuals were still freely handled. Sufficient examples of these have been given, and it is well to record here the somewhat surprising fact that the furious quarrels to which allusion has been made left behind them no abiding rancour.

THOMAS HENRY WAKLEY.

Thomas Henry Wakley, who succeeded to the editorial chair, was even more retiring from professional and social life than his brother James; the two brothers, indeed, showed great similarity of personal characteristics and temperament, although their preliminary educations differed widely. And the life work of each, as far as it was connected with THE LANCET, was very similar, the parallel having originated in the fact that each regarded his position as an heritage from the father, who founded the paper, and considered the first programme to be a constitution which could not be departed from without grave reason.

Thomas Henry Wakley was born almost contemporaneously with the paper, and during his boyhood the sensational proceedings of THE LANCET were attracting the notice of the legal and medical professions. He was sent up to Wadham, but while still an undergraduate University College, London, was founded with a famous medical faculty in attachment, and as he intended to practise medicine he transferred himself to London without taking his degree at Oxford. In those days the medical teachers, or professors, at University College were an extremely distinguished band, numbering among them Samuel Cooper of the Surgical Dictionary; Liston, reputed the finest operator in London; Richard Quain, the author of "The Anatomy of the Arteries"; Anthony Todd Thompson, author of "The Dispensary"; Robert Carswell, the famous pathologist; Robert Grant, the comparative anatomist; and Sharpey, the leading physiologist of the day. It will be remembered that the lectures of many of these savants formed the conspicuous characteristics of the early numbers of the Journal. An industrious student, therefore, had extraordinary opportunities at such a school, and young Wakley became known to more than one of his teachers as a promising pupil. He was also admirably coached, for his father secured Erasmus Wilson, at that time lecturer on anatomy at the Middlesex Hospital, to read with his son. Wilson and his pupil got on well together, and Wakley acted as demonstrator at his coach's private classes with great benefit to himself.

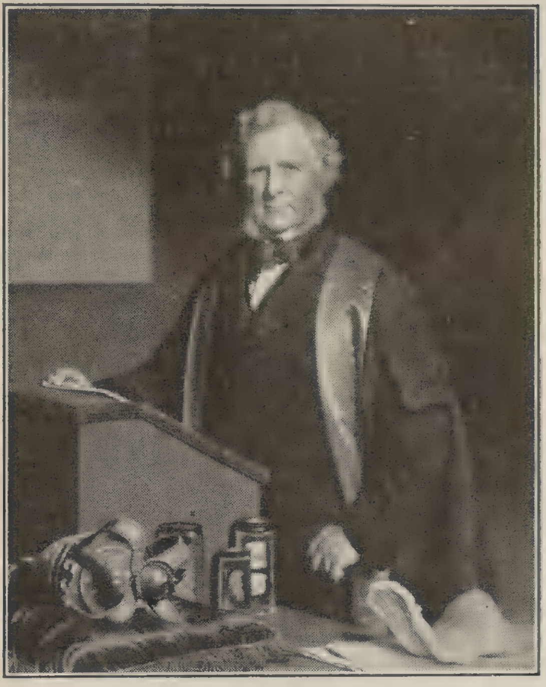


FIG. 35.—SIR ERASMUS WILSON.

(William James) Erasmus Wilson (Fig. 35) was the pupil of Abernethy and of Lawrence, and after demonstrating in anatomy under Jones Quain and Richard Quain, started a private school of anatomy.

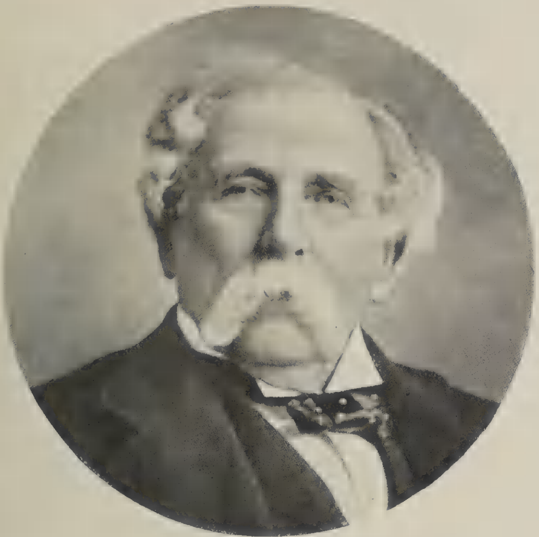
at which time he became T. H. Wakley's tutor. The scholastic venture was not successful, and he applied to the Middlesex School for employment, and at the same time was appointed assistant editor of THE LANCET. He himself attributed his determination to become a dermatologist to the senior Wakley's advice, and it is an often told story that Wakley bade him link his name so closely with skins that when he entered a room the company would scratch themselves. (The story is told of other dermatologists possibly with equal correctness.) His enormous success need not be dwelt upon; his benefactions to the Royal College of Surgeons of England, over which he presided in 1881, amounted to over £200,000, in addition to which he gave large sums of money to Epsom College and the Sea-Bathing Infirmary at Margate, and defrayed the expense of deporting Cleopatra s Needle to the Thames Embankment. He was an assiduous and scientific worker, who owed his great pecuniary reward to these qualities, and also to a remarkable use of opportunity. His field of medicine was unexplored, so that when he broke ground he enjoyed almost a monopoly, while he made large investments in gas and railway stock at judicious moments. He remained assistant editor definitely for about four years, but during much of his life his association with the paper was very close. The post of assistant editor did not then entail the interviewing, letter-writing and office routine which later were called for, and daily attendance was not called for.

In the year 1845 T. H. Wakley took the Membership of the Royal College of Surgeons of England, having previously proceeded to Paris in deference to his father's views that the scheme of medical education enjoyed by the Parisian students was preferable to that of the London medical schools. In Paris he lived with Dr. J. Henry Bennett, a well-known gynæcologist, and was an assiduous attendant at the cliniques of the best operating surgeons in the city. When he was not engaged in medical studies he spent his time and his money in taking music lessons, with the result that when he returned to England he was a trained musician and good French scholar, as well as a surgeon of large experience considering his age. In the year 1848 he was elected assistant surgeon to the Royal Free Hospital, a hospital which had been started as a protest against the system of letters by which subscribers to the medical charities of London were able to dispense patronage upon exclusive principles. This hospital made a great stride forward in 1842, when it was removed to its present site, and the appointment formed an admirable opening for a young surgeon. Wakley entered into the spirit of his duties with enthusiasm. He felt that he had got his chance while he was a junior man, but, although he was by no means blind to the advantage of having his father and THE LANCET at his back, he set out with the intention of making a name for himself in surgery. He took a house in Guilford-street so that he might be near the hospital, and for several years became, more or less on his own initiative, casualty surgeon to the institution. His house was so near to the hospital that it was inevitable that the resident staff should appeal to him in all cases of difficulty, and he was delighted with the opportunities which he thus got for increasing his experience.

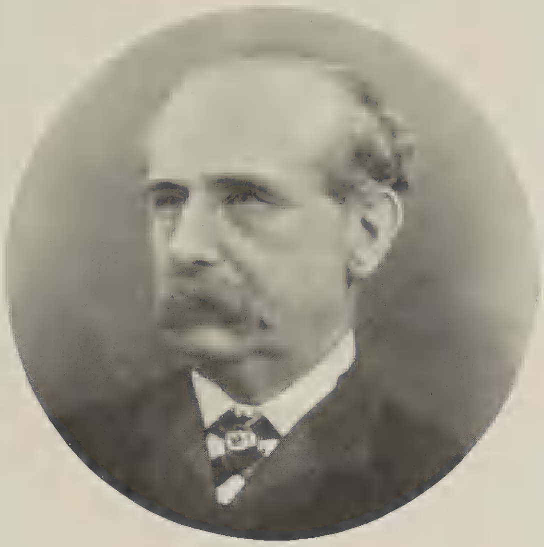
He soon found that the value of having a distinguished father, who was also aggressive, had its drawbacks. If there was one point on which that father had been more clear than another it was the mischief done at the metropolitan hospitals by the appointment, through nepotism, of the wrong man. When, therefore, the son of the Editor of THE LANCET, while still quite a young man, and with a record for work behind him which had largely been accomplished in another country, was appointed to the staff of the Royal Free Hospital, all the critics of THE LANCET were prepared to consider that the appointment was an example of the very abuses against which THE LANCET was ever fulminating. The second Thomas Wakley soon became conscious that his hospital practice was attracting an amount of interest not usually manifested in the work of so young a practitioner, and both father and son were ill-advised in the publication of frequent communications in THE LANCET over the son's name. But when the attack came its victim was not found unprepared. He was accused of malpraxis at the hospital, refused to pay blackmail to the parents of the child on whom he had operated, and disregarded a scurrilous and indecent pamphlet purporting to be a record of the case, although this was hawked about the street where he lived. An action was at length brought against him *in formâ pauperis*, and the accusation came at an extremely inconvenient moment, for he was intending to present himself, just about the probable date of the trial, at the final examination for the Fellowship of the Royal College of Surgeons of England, instituted six years before. Some of the examiners had been subpœnaed to appear for the prosecution, but he resolved to present himself, and passed on Dec. 6th, 1849, a date which, by the way, bracketed him at the time of his death as senior Fellow of the College. The trial came on Dec. 10th, and was a triumph for Wakley. The only surgeon called for the plaintiff gave evidence for the defendant, the unanimous and authoritative opinion of whose witnesses could not be questioned. The private malevolence which, together with the hope of blackmail, had instigated the prosecution was fully revealed, and the jury, who had previously manifested a desire to stop the case, found a verdict for Wakley without leaving the box.

The ordeal probably increased his professional status, for shortly afterwards he migrated to Arlington-street, where he gained a considerable practice as a general surgeon and made a special study of orthopædics. He also invented several instruments which had a certain vogue for a time in urethral surgery, and he appears to have been the first observer to see the use to which glycerine might be put owing to its hygroscopic properties. But when in 1862 his father died, while the editorial conduct of THE LANCET passed to James Wakley, Thomas Henry Wakley, as part proprietor of the paper became actively interested in its conduct. For many years, while still in practice, he came

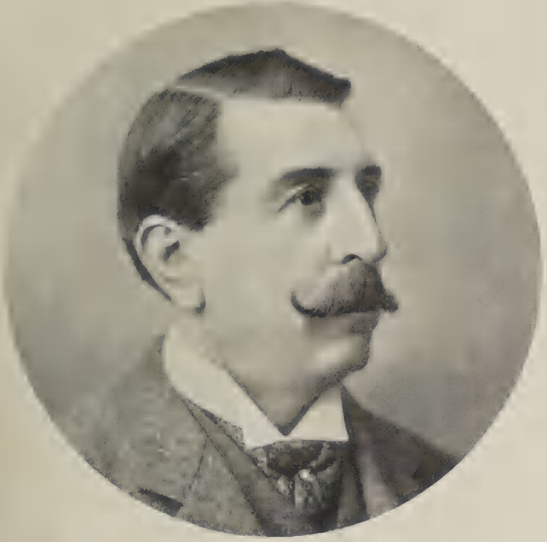
EDITORS AND PROPRIETORS OF THE LANCET



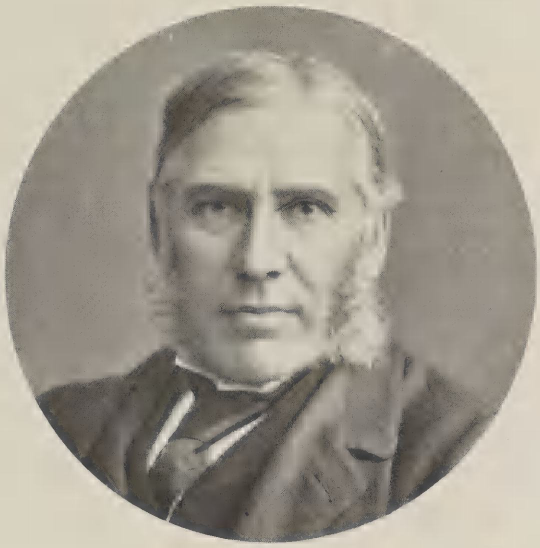
THOMAS H. WAKLEY.



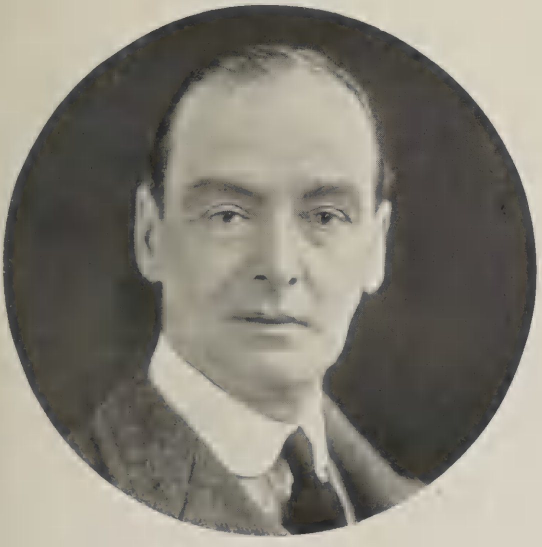
JAMES G. WAKLEY.



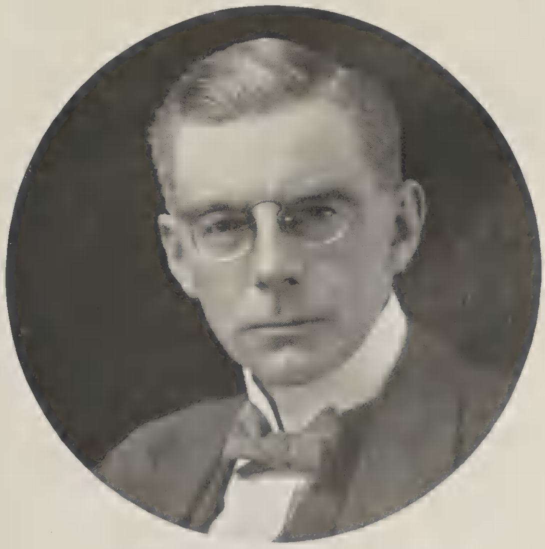
THOMAS WAKLEY, JUN.



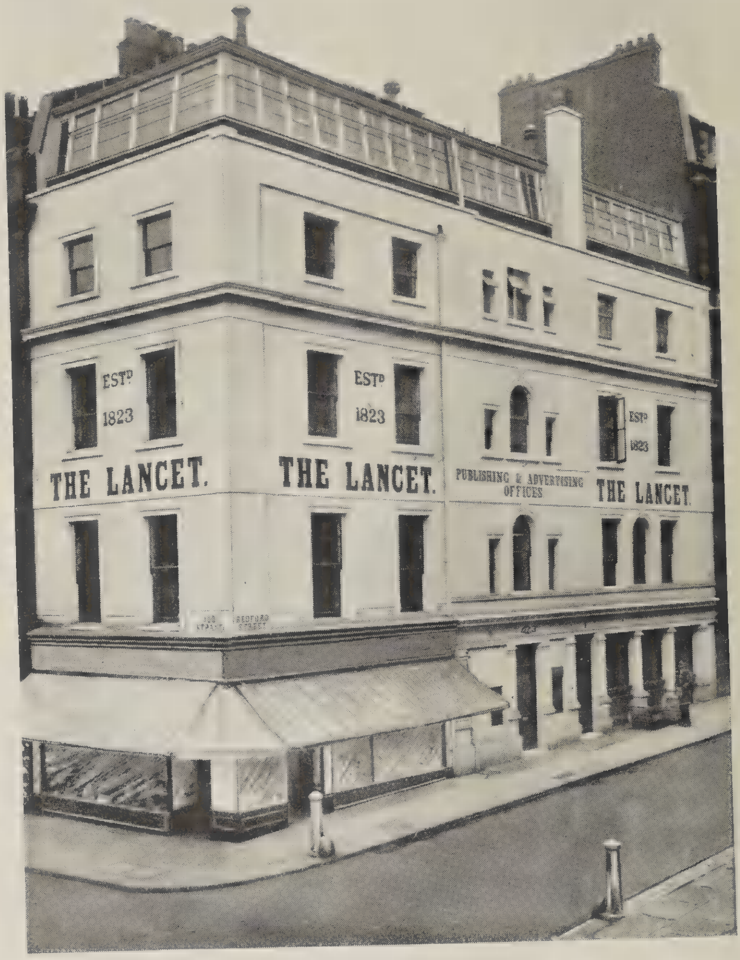
JAMES G. GLOVER,
Ethical Adviser for 30 years.



SIR SQUIRE SPRIGGE.



SIR ERNEST HODDER-WILLIAMS,
Chairman.



THE OFFICES OF THE LANCET.

daily to THE LANCET offices, finally retiring to become manager, and later Editor, in joint editorship with his son, the third Thomas Wakley.

Many can recollect Thomas Henry Wakley, who died in 1907 at the age of 86. Of unbounded activity, physical and mental, he was never ill and never absent. In all weathers and on all occasions he arrived in the early morning at his desk. For many years he spent the winter months in Brighton, but he never allowed this to interfere with his regular and punctual attendance. So late as 1903, when he was in his eighty-second year, he made the journey from Brighton to London and back daily, giving the lie to the gloomy prognostications of the effect of such transits on elderly persons. During the last decade of his life the editorial management of the journal passed from the hands of the father to the hands of the son, but to the end the senior showed no abatement of interest in the details of the paper. One subject he retained in his own hands entirely. During all the period in which he was associated with the editorship of THE LANCET great prominence was always given to the work of the Hospital Sunday Fund, largely founded by his brother. Thomas Henry Wakley resolved that the interest manifested by his brother should not be allowed to die out. He personally supervised the publication every year of a special supplement issued in the interests of the Fund, and only with great reluctance permitted this feature of the paper to be modified when it became clear that the movement was established permanently in the public mind as one to be supported. His deep sympathy with the material welfare of the medical profession was shown not only by his acts of private generosity but by the institution of a relief fund intended to meet unforeseen and urgent pecuniary exigencies among members of the medical profession. His particular adviser in these matters was Sir Andrew Clark (Fig. 36), who published much of his comparatively few writings in our columns. But the friendship between him and the editor had little or nothing in connexion with them. To Clark he went when he wanted an opinion on medical situations, when the view of a man of the world as well as a professional leader was needed, and a real friendship was always maintained between them.

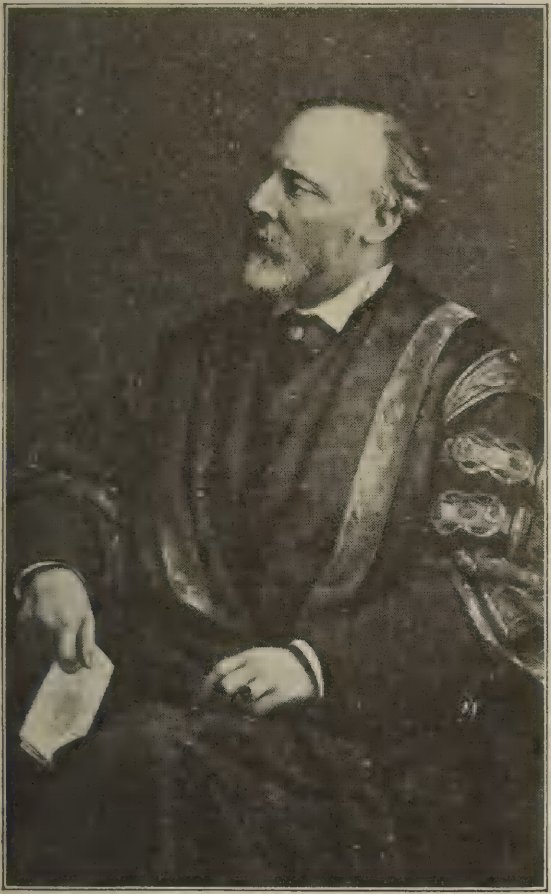


FIG. 36.—SIR ANDREW CLARK.

The proved utility of this scheme of practical generosity was always a source of great satisfaction to its originator, and the Wakleys, father and son, during their editorship, disbursed some £6000 in this way before the situations which it had been designed to meet no longer arose or were better met otherwise. T. H. Wakley was also a warm supporter of Epsom College, his advocacy of this foundation taking the practical form of a donation of £1000, given in the name of the proprietors of THE LANCET. Throughout the whole of the editorship of Thomas Henry Wakley he was loyally assisted by his son, Thomas Wakley, jun., who was already conversant with the mechanical side of newspaper production. And circumstances allowed at this time opportunities for peaceful development.

SOME LOYAL FRIENDS.

James Wakley upon his death-bed left behind him a message to the readers of the paper, which was duly published in THE LANCET. In this message he desired to record "that he had been materially aided in anxious editorial work by Mr. John Tweedy, Dr. J. A. Marston, and Dr. J. G. Glover, with whom he had for many years been very intimate, entertaining great regard and esteem for them, and having great reliance in the soundness and fairness of their judgment, their scientific and literary ability, and the integrity of their character." He was also anxious that tribute should be borne to the work done by Dr. A. H. Hassall, when THE LANCET exposed the adulteration of the food of the people, and "to the long and faithful services of Mr. H. A. Beckett, the present sub-editor of the journal." A few words on the character and work of these valuable friends are fitting.

Henry Arnold Beckett (Fig. 37), sub-editor of THE LANCET at James Wakley's death, was an interesting personality. He had been connected with the paper, first in the printing and later in the editorial departments, from boyhood. He was brought over from the printing department by the original Thomas Wakley, who had been attracted by his gift of memory. THE LANCET was still of moderate size, and Beckett became the editor's private proof-reader. With untiring industry he read the proofs of the whole paper, and what was at first a rule-of-thumb proceeding became in time a highly intellectual performance. For Beckett was determined to understand the gist of what he read, and in the course of his duties became an absolute dictionary of information on professional subjects. Not only did he know the personalities and literary records of hundreds of medical men, but he obtained from them explanations of their words, and sometimes of their actions, which enabled him to follow arguments and disentangle differences of opinion. He had no medical education, but he obtained a wide if theoretical knowledge of medical science in three different ways simultaneously. He supervised the indexing of THE LANCET for years, and his recollection of back numbers was extraordinary: his large and variegated reading was so carefully performed, and with such attention to the author's meaning, that much of the essential teaching was made his own: while the numerous interviews that he had with medical authors concerning the contents of their papers were always turned by Beckett into opportunities for increasing or revising his knowledge. Lister personally explained to Beckett the reasons of many of his procedures, in order to make quite clear to him why he considered some of the objections taken to them mistaken or unfair.

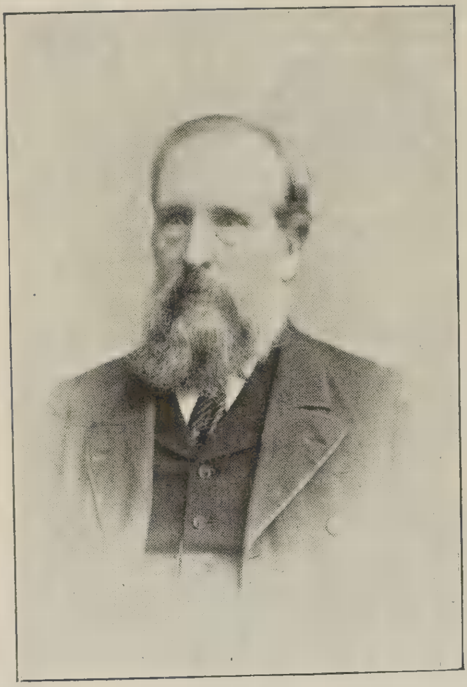


FIG. 37.—H. A. BECKETT.

Sir John Tweedy, Surg.-General Marston, and Dr. Glover remained to support the new Editors, and of these the first is still with us, and it is entirely unnecessary to tell a medical audience what part he has played in medical life or to embarrass him by recording the unanimous view of the high and sterling quality of his scientific and official work. But it must be recorded in a history of THE LANCET that Tweedy had been definitely offered the editorship of the paper with which he had been connected closely since the age of 21, and for which he had done such splendid work as general surgical supervisor, discharging at the end of James Wakley's life all the functions of a joint editor. Acceptance of the offer would have entailed a sacrifice of prospects which, tempted though he was by many of the aspects of journalism, he could not consider. But until his professional commitments made it impossible, he continued to help the paper week by week for many years; indeed, to-day we call upon him, and have done so freely in the compilation of this record.

Surgeon-General Marston was for many years our adviser upon all medico-military subjects, and the numerous editorial articles advocating reforms in the Services, detailing grievances or applauding advances, which appeared throughout a period of great changes, were mainly from his pen. His views were conservative, and he did not always see eye to eye with those whose interests he was most concerned to maintain, but the soldier-doctor never had a warmer friend. He entered the Army Medical Service in 1854, and soon made his mark both as scientific and executive officer. As a surgeon-major he superintended the scheme for a hospital-ship service with the Ashanti expedition (1873–4), and in 1877 was the medical member of the Committee appointed by the Secretary of State for War to draw up the dietary for military prisons. In December of the same year he was appointed secretary to the Principal Medical Officer of the British Forces in India, in which capacity he prepared the schedule of field hospital organisation for the Afghan War. His work proved of great value, and in 1882 he was appointed sanitary officer to the Egyptian expedition and was present at the Battle of Tel-el-Kebir. He was later head of the Statistical and Sanitary Branches at the Army Medical Board and during his official life he kept closely in touch with scientific medicine. His lectures on military hygiene to the medical officers at the Army Medical School at Netley were valuable résumés of the known, as well as sound forecasts of probable developments. In the autumn of 1887 he was sent by the War Office as a British army medical delegate to the Ninth International Medical Congress held at Washington, and in 1888 he went to Egypt as P.M.O. of the British forces serving there, and was responsible for the medical arrangements connected with the contingent sent to Suakim. On his promotion to the rank of surgeon-general, in 1889, he was transferred to Gibraltar, whence he returned to retire from the Service. After his retirement he became President of the Army Sanitary Commission and a member of the Indian Medical Board. Perhaps the most valuable official document for which Surgeon-General Marston was responsible was his report to the War Office upon the Washington Congress mentioned above. In this report he emphasised the importance, especially in field operations, of reducing as much as possible the number and bulk of medical remedies employed, and testified in the early days of compressed drugs to the usefulness of carefully-prepared tablets. His favourite anticipation for the British Empire, however, was an Imperial Defence Service, in which room would be found in different sections of the service for all good qualifications, whether physical or mental. For 30 years, whenever his conditions of service allowed, Surgeon-General Marston was a regular member of our staff, and although in the decade before his death in 1911 he had ceased to give much active help, in matters of which he had expert knowledge, his advice was often sought up to the last week of his life. During his periods of practical journalism he was found by all his colleagues to be a combination of good nature, wide reading, and shrewd criticism. He had a great sense of the dignity of the medical profession, but at the same time was contemptuous of a too narrow professional spirit, and it was this attitude which led to a belief among the most advanced in the demand for a Royal Army Medical Corps that we were not sufficiently warm in putting forward their views. Marston's frankness of diction in the columns of THE LANCET did not always please the professional public, but his simplicity and directness delighted those with whom he came into personal contact.

Dr. James Grey Glover exerted a wide influence over the policy of THE LANCET for a period of 37 years. He graduated at Edinburgh, came under the powerful influence of Christison, Goodsir, Alison, Syme, and Simpson, and arrived in London in 1864 at the age of 32, when he started in general practice in Highbury, living for most of the time at 25, Highbury-place, the house which had once been the home of Joseph Chamberlain. He was a Whig, a nonconformist, and a highly-endowed practitioner, who regarded the profession of medicine as a noble mission. He was well-read in general English literature, especially that of the eighteenth century, which gave to his writing a combination of clearness and classical flavour. He was a deeply religious man, with as strong a desire to remedy social as physical ills. Before leaving Edinburgh he had sent to THE LANCET an article entitled "A Physiological View of the Premier, Lord Palmerston," which had attracted much attention, had been copied into scores of newspapers, and made the subject of verses in *Punch*. On his arrival in London James Wakley invited him to send further communications, and soon found Glover a trustworthy and sagacious colleague. He became James Wakley's lieutenant in all the Metropolitan Hospital Sunday Fund movements, and continued to act in that capacity, but his special work at THE LANCET, under the new Editors, was to take charge of all questions affecting general practice. When in 1886 direct representation of the profession on the General Medical Council was secured, Glover was elected at once and was re-elected time after time for 16 years until his retirement.

The status of the general practitioner had risen enormously under the Acts of 1858 and 1886 and a large number of new questions had arisen, such as the registration of midwives and the use or abuse of unqualified assistants. Discussion of these topics was frequent and free over many years, and their conduct was confided to Glover.

REGISTRATION OF MIDWIVES.

At the close of the century there was a plethora of suggestions for dealing with the question of the unregistered midwife. An important Bill was prepared by a subcommittee of the British Medical Association, a Midwives Registration Bill had been introduced into the House of Commons by Mr. Tatton Egerton, and there were two private Bills before the House which represented movements owning considerable support. This variously promoted group of measures may be taken as a proof of complete recognition that pregnant and parturient women in the lower classes were not sufficiently protected from the risks of childbirth. The rates of mortality due to the ignorance and dirtiness of unregistered midwives, many of them old ladies who attended a lying-in or a laying-out with equal relish, were so variously stated that the best informed took refuge in such rough statements as "hundreds of thousands of women die every year from these evils," but no one contested the presence of the evils. Not only were there wide divergencies in the various measures advocated as a remedy, but opinion in medical ranks as to the necessity for the registration of midwives was divided. And those members of the medical profession who were prepared to let things remain unaltered were not displaying either want of humanity or supineness : they believed that under the régime of registered midwives midwifery as a science and art would degenerate and would cease to be kept up to the standard of the great branches of practical medicine and surgery. They also believed that with the registration of midwives the practice of midwifery in normal cases would pass from them, a loss which was not to be measured so much in money as in influence and responsibility. Midwifery practice among the poor was not lucrative, but it brought the practitioner into intimate relation with the home. To a limited extent—and 20 years ago it was limited—the medical man who attended the confinement became aware of the antenatal circumstances, while the after-care of the children devolved naturally upon him. With these things in their mind there grew up among many doctors opposition to the principle which inspired the numerous Bills, as well as a very critical attitude towards each measure.

Accordingly a comparatively large number of practitioners opposed all measures for the registration of midwives, and the agitation lasted some years. Its steps do not require to be chronicled here, but within THE LANCET it had grave consequences. The General Medical Council had come to the conclusion, which no one to-day can think otherwise than a right one, that the registration of midwives was badly needed in the cause of common humanity, while the Senior Direct Representative of the profession on that Council, Glover, was known to be our trusted adviser on questions of public policy and the relations of the medical profession to the public at large. Neither the

Wakleys nor Glover had any hesitation as to which side the paper should take, but the course adopted was not popular with an appreciable fraction of our readers. It was decided to make an attempt to ascertain the general feeling of those medical practitioners whom the proposed legislation immediately concerned. The Bill did not contemplate Scotland or Ireland in its working. We addressed a circular to the English medical practitioners and received a number of replies which was unexpectedly large, having regard to the fact that a large proportion of persons never answer circulars, and that a certain proportion of those to whom our questionnaire was addressed considered the absence of personal interest to absolve them from reply. Over 6000 English practitioners replied immediately, and of these 1817 considered that no legislation was required, of whom 1530 were also and for specific reasons opposed to the Bill before the House; 1323, while opposed to the Bill, desired to see legislation for putting down many of the practices in vogue among unqualified persons; 433 while approving legislation for regulation of the practice of midwives were not in favour of the particular Bill; and 1311 medical men were in favour both of legislation for the regulation of the practice of midwives and of the Bill. Six hundred and eighty-nine medical men did not answer the questions with a simple "yes" or "no," but wrote letters explaining their views, and the analysis of these letters showed that 445 were opposed to the Bill. The total was made up of those who wrote to express indifference to the whole matter, the one thing emerging being that of 6299 medical men only 1311 were in actual favour of the Bill before the House. A little over 1000 belated replies confirmed the proportion of these figures. We like to remember that, although at the time the policy was not one which improved our circulation, we interpreted these figures rightly in believing that they implied far more apprehension of the results of a particular measure than a whole-hearted opposition to the principle of registration of midwives. An Act to secure the right training of midwives and to regulate their practice was passed in 1902, but was severely criticised at the time in our columns. The measure during two years' delay and disputation had been altered in shape and not for the better, but our main opposition to it was that it did not conform to the directions of the Privy Council that certain points should be conceded in deference to the views of the General Medical Council. As we anticipated, many hard circumstances arose under the Act, which was amended in 1918 in favour of the existing legislation.

THE LANCET COMMISSIONS.

A testimonial to the work done by Dr. A. H. Hassall and those who collaborated with him in carrying out the Analytical Sanitary Commissions formed part of James Wakley's dying message. Hassall's share in that work has been described at length, and a series of independent inquiries of all kinds was undertaken for many years on the same pattern, or with the same broad object. The scheme took a permanent form, a chemical laboratory was installed in The Lancet building, and investigations were made on the spot and reported upon in the columns of the paper. As far as the chemical and analytical work was concerned, it was supervised for the 33 years between 1860, when Hassall became only an occasional assistant, and 1893 by C. W. Heaton, who held at different times examinerships in chemistry at the Royal College of Physicians, London, and the Royal College of Veterinary Surgeons, was public analyst for St. Martin's, treasurer of the Society of Public Analysts, and an original Fellow of the Institute of Chemistry. Heaton's first appointment was to lecture in chemistry at Charing Cross, but he had previously been science master at Epsom College, and the two things determined his invitation to join the staff of The Lancet. First, the proximity of Charing Cross made it possible for Heaton to deliver lectures at the Medical School while attending to The Lancet Laboratory, and, secondly, his connexion with Epsom was a very sound introduction. Moreover, Heaton had written, and was writing, scientific articles for the *Saturday Review*, so that as a practised journalist he was particularly well equipped for our post.

But, as important as any of the work done in the Laboratory, were Special Commissions set in motion to inquire into various defects associated with social machinery understood in the broadest way. While Heaton's work may be considered as a sequel to that of the brothers Henry, Letheby and Hassall, the other Commissions were more on the pattern of the inquiry made by Anstie and his collaborators into the Condition of Workhouse Infirmaries or the inquiry into the Conditions and Influences of Railway Travelling.

We can illustrate the range of these inquiries by some of their titles. Analytical Sanitary Commissions were instituted to inquire into Opium and its Adulterations; into the Constitution of Coloured Confectionery, which was frankly termed poisonous; into the Adulteration of Popular Beverages like Porter and Gin.

Inquiries into the character of the food-supply of great cities like Manchester, Liverpool, and Leeds were made on the spot. Other reports, the result of first-hand investigation, dealt with the Water-supply of London, the Hygienic Condition of Aldershot Camp; the Out-patient Departments of Metropolitan Hospitals; the State of Workhouse Hospitals (a second inquiry); and the Sanitary Arrangements at Public Schools, among which may be mentioned Wellington, Marlborough, the Bluecoat School, Eton, Harrow, Winchester, Shrewsbury, Rugby, and Uppingham. Other inquiries dealt with the health of children in large pauper schools, night nursing at hospitals, and the sanitary condition of the chief English watering-places.

Many of these inquiries make good reading now, and the fact that it should have been left to a newspaper to set them in motion is a striking proof of the subsequent growth of sanitation in this country.

It was absolutely necessary that such matters should be looked into for the good of the public health, but inquiries undertaken by a newspaper would have been an intolerable interference had there been properly constituted authorities to undertake the work and shoulder the responsibilities. It is needless to say that the actions of THE LANCET were often bitterly resented, as at Brighton, but the public motive at the back of the work, and its unprofitable nature, ensured the popularity of our efforts. It may fairly be claimed that the revelations made year after year in the columns of THE LANCET inspired sanitary legislation in every direction. This is not to suggest that everyone else was blind to the abuses revealed. Certainly many of our inquiries were made in reply to requests from those who, from personal knowledge, were aware of what would be discovered, while other observers besides the staff of THE LANCET were alive to the fact that legislation along certain lines would abate abuses. But, where the work of THE LANCET was not original, it was at any rate vocal, and when its voice was felt by those affected as a profoundly disagreeable one the necessity for raising it was justified. The last six Commissions instituted by James Wakley, not including his continuation of the inquiries into the conditions of lunatic asylums and sick infirmaries attached to workhouses, were the following: Spread of Disease through Laundries; Contamination of Uniforms Provided by the Army Clothing Depôt; Ventilation of Police-courts, and, later, of the new Royal Courts of Justice; and the Pollution of the River Thames at Henley Regatta. To some of these further allusion will be made.

BRIGHTON DRAINAGE.

Against one of the most famous watering-places in the country THE LANCET appeared to have a grudge, but in the end the community admitted that they never had a better friend than their candid critic. The subject was returned to on several occasions, until all need for interference was gone, and is selected for reference out of the long list given above as an example of the way in which the Commissions were designed to deal with public things in a medical manner, and in a shape that would be useful to other communities than the one concerned.

In 1862 two long and plain-spoken reports were published showing by chemical and microscopical analysis the impurity of the drinking-water at Brighton, and giving full evidence as to the disgusting nature of the contamination to which the front was exposed. At that time three-fourths of the houses drained into cesspools without any outlet, while the sewage from the remaining fourth was thrown into the sea in front of the houses, where it formed an intolerable nuisance. Brighton resented the report but acted upon it, and there was an extension of the drainage system by which the bulk of the sewage was carried a third of a mile east. This was in 1864, but in 1868, it having become clear that the measures taken were inoperative, a further report was published pointing out that the drainage of the town was still imperfect, that the bathing in the front was being fouled in a disgusting manner, that 10,000 cesspools were still in operation, and that only 4000 houses were connected with sewers. A torrent of indignation fell upon THE LANCET from those interested, but the corporation of the city was roused to vigorous action and a resolution was taken to deal at once in a liberal spirit with the whole difficulty. By 1874 a main intercepting sewer had been constructed which carried the sewage to an outfall four miles further to the east, when a second report was made on the drainage conditions of the town. In this, THE LANCET, while offering congratulations to the municipal government upon their action and acknowledging the improvements which had taken place, found fault with the ventilation and recommended further inquiry. As a result, Sir Joseph Bazalgette reported on the sewage of Brighton, when his words afforded complete justification of what appeared to be attacks made unjustifiable by their reiteration. And so at last the great health resort became the splendidly sanitary city it now is.

The Editors of THE LANCET then went to Brighton regularly for the winter months of many years, and thus designedly or accidentally showed their certainty that no more criticism of the drainage was called for. The *rapprochement* was poignant, for at one time many Brightonians spoke loudly of bringing actions against THE LANCET for damage of their house property and businesses, while the Wakleys on their side were only with difficulty restrained from proceeding for libel against certain members of the Brighton town council, who said that the unfavourable reports upon Brighton as a health resort were due to the fact that the Editors of THE LANCET had acquired property in the neighbourhood of a rival health-resort.

THE LAST THIRTY YEARS:

THE STAFF OF "THE LANCET."

IN 1893 THE LANCET was under the editorship of Thomas Henry Wakley and his son, the third Thomas Wakley, and of those mentioned as having conducted the paper during James Wakley's long and fatal illness, Glover was still the principal adviser on medical politics and organisation, and Marston remained to direct our views on Service and other matters with which his long public career had made him familiar, while THE LANCET Laboratory was under the direction of Samuel Archibald Vasey, Heaton's pupil and assistant, who had succeeded him as director. Upon Tweedy's help we could always rely. In this year Dr. Squire Sprigge, the present Editor, was appointed assistant editor, the internal staff being immediately afterwards strengthened by the presence of Dr. H. P. Cholmeley. Beckett was still in regular employ, but a breakdown in his health had made his attendance at the office largely a matter of personal desire to stay in harness, the sub-editor's duties being discharged by the late Dr. W. L. Brown. In the following year Mr. Charles Good became the general manager.

This small internal staff was advised along the obvious lines of general and special work by a body of collaborators of whom the list follows, and the number whom it was considered necessary to call upon for help is a direct revelation of the way in which medical science had recently spread. The external staff in 1893 was four times the size it had been 20 years before; in fact, to-day it is not larger, and for two reasons. First, there are many places in which medical activities have become more concentrated, while running more in accordance with some accepted plan, making it unnecessary to publish certain things either so often or so much in detail. But, secondly, medical science and medical organisation have progressed in so many and such varying ways that no restricted staff, however large, could possibly either record the happenings week by week, or deliver any but the most perfunctory opinions upon them. This has necessitated the regular invitation of particular persons to assist us along particular lines, whereas in 1893 the Wakleys attempted to collect a group of collaborators who showed themselves able to deal immediately with anything scientific or social which should present itself to notice week by week.

The names now given are those of the staff in 1893.

Collaborators in 1893.

The list is taken from an old ledger, whose contents are protected by padlocks, a reminiscence, no doubt, of the sad old times when it was necessary to protect the author of, say, an "Intercepted Letter" or a "Medical Biography" from the consequences of his humour:

*J. H. Barnard, A. Boggs, *E. Bar, Dudley Buxton, W. H. Battle, J. W. Byers, J. H. G. Brock, H. T. Bulstrode, John Curnow, Sidney Coupland, F. G. Clemow, H. Radcliffe Crocker, Richard Davy, C. Duncan, *R. Ellis, W. H. Evans, C. Fleming, A. Pearce Gould, J. W. Gordon, W. R. Gowers, C. Hime, *C. A. Hodgetts, Noel Humphreys, Leopold Hudson, W. S. Hedley, C. J. Huddart, F. W. Lowndes, James Lindsay, A. H. N. Lewers, Shirley Murphy, B. G. Morrison, Theodore Maxwell, A. Macgregor, John C. McVail, A. Napier, David Nicolson, Henry Power, Vivian Poore, A. J. Pepper, *M. C. Prendergast, C. H. Robinson, William Russell, Walter Rivington, Benjamin Ward Richardson, C. H. Ralfe, *F. Ransom, R. D. Sweeting, H. Simpson, Adolphe Smith, *J. P. Steele, *G. R. Saunders, A. M. Sheild, G. A. Syme, F. G. Sandwith, *Stephen Smith, C. Shoveller, Nestor Tirard, James Taylor, John Tatham, G. Thin, F. J. Wethered, E. F. Willoughby, W. Essex Wynter, W. W. Webb, G. Sims Woodhead.

In this list, which at such a lapse of time there can be no indiscretion in publishing, the names marked with an asterisk are those of foreign correspondents, the countries represented being France, Italy, Germany and Austria on the Continent, Egypt, Canada, Australia and New Zealand. A sad number of these have died during the 30 years that have elapsed since the ledger list was compiled, but this, of course, could only be expected; on the other hand, the majority survive, and many of them are still working in a distinguished manner in the profession. We must here record our sense of gratitude for their help, and if it is done in bald or general terms the reasons for avoiding adjectives are obvious. Those who are alive would not desire to be reminded of their merits, while the mere names of many of them will enable a medical public to recognise their worth without any testimonials from us. But there is a group of men among these who must be mentioned in our centenary number with some particularity because of their long and intimate connexion with us. Dr. Sidney Coupland, Mr. W. H. Battle, Mr. Adolphe Smith and Dr. Dudley Buxton, among those who still happily live; and Sims Woodhead, Pearce Gould, Shirley Murphy, Bulstrode, and Vivian Poore, among those who have gone—these were the principal leader-writers or heads of departments for many years, in conjunction with Glover, Marston, Sir John Tweedy, Vasey, Cholmeley, and the present editor. Under the section of Anæsthetics there has been indicated the long and heavy work entailed upon Dr. Buxton, who kept us fully informed upon his own speciality for so many years.

More Old Friends.

Three whose names are in the enumeration for 1893 rendered the greater proportion of their help earlier. From the days of James Wakley onwards their learning and judgment, in widely differing capacities, was a source of pleasure and information to our readers. They are Sir Benjamin Ward Richardson, Henry Power, and James Peddie Steele. Benjamin Ward Richardson (Fig. 38), trained in the Universities of Edinburgh and Glasgow, joined the staff of The Lancet in the early fifties, having been introduced to the first Wakley by Douglas Jerrold. He was physician to many public charities, though not attached to any general hospital. He gained the Astley Cooper Prize and the Fothergillian Gold Medal of the Medical Society of London, and was a great sanitary reformer and humanitarian. He did much original work in anæsthetics, was elected an F.R.S., and delivered the Croonian lectures at the Royal College of Physicians. The most open-minded and generous of men, there was a time when his animosity and that of Christopher Heath to Ernest Hart were embarrassing to the Wakleys, who had no desire to prolong a sterile series of bickerings, and for a period his contributions ceased. His range of general knowledge was immense. He wrote in poetry and prose, and produced practically single-handed a journal embodying researches in the science, art, and literature of medicine, *The Asclepiad*, which as an annual, and later as a quarterly, had a life of over 30 years and contained much interesting and valuable matter. His articles, sometimes signed, but mostly unsigned, in The Lancet dealt accurately with questions of pharmacology and therapeutics, forensic medicine, domestic sanitation, veterinary surgery, and especially the question of total abstinence. He was a convinced teetotaller, but none the less found alcohol to be a valuable drug if competently administered.

James Peddie Steele, also thoroughly trained at Scottish Universities, was known as a scholar in Edinburgh before he came to London, nominally as a physician but really as a journalist. Under James Wakley he was a regular leader writer on the staff, and when, about 1880, he went to Rome and obtained a large and good practice, he continued to write editorial articles, while as our local correspondent in Rome, and later in Florence, he kept the paper closely in touch with Italian medicine. He was a sound classic and a really famous Latinist, and his leading articles, which appeared in some of the best known lay journals as well as in THE LANCET, could generally be detected by their successful use of the old-fashioned Latin period to display an advanced spirit of medical research. On retiring from practice in Rome he went to live in Florence, where his villa became the centre of open-handed hospitality. He was the personal friend of the leaders of Italian scientific and social thought, who had opportunities of meeting at his table representatives of English scientific and academic life. He wrote in these pages until his death in 1917.

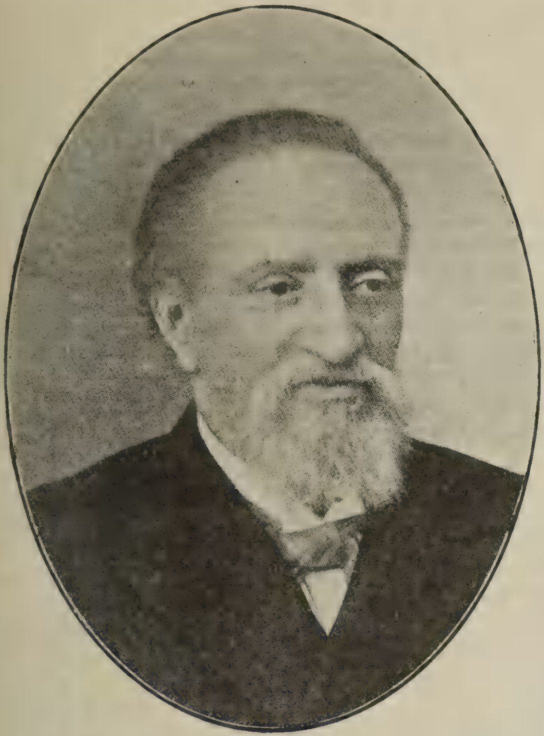


FIG. 38.—SIR BENJAMIN WARD RICHARDSON.

Henry Power (Fig. 39), ophthalmic surgeon to St. Bartholomew's Hospital, was for over 40 years a regular member of our staff. His varied literary work showed well his industry and wide range of exact knowledge, but the particular services which he rendered to THE LANCET were allied to the fact that he edited the sixth, seventh, eighth, and ninth editions of Carpenter's Principles of Human Physiology. He was a really great student of all the manifestations of life. He had read widely and in several languages anatomy, physiology, and botany, and week after week and year after year in our columns he summarised continental knowledge of these subjects or sat in genial judgment upon medical writers, when so closely accurate were his appreciations, and so obviously fair and friendly his reservations, that no author was even moved to protest against his criticisms. No member of the staff of THE LANCET was ever more missed than Henry Power when retirement from London broke his intimate association with us.

Gowers, the author of the "Manual of Diseases of the Nervous System," was a great investigator and observer as well as a successful expositor of the theories of Hughlings Jackson. He wrote largely in our columns both editorially and above his signature, and was not an easy man to work with. While he was an extraordinary observer with a wide horizon and sound judgment his sweeping deductions, preceded by no exposure of reasons, were embarrassing, and when the consequent obscurity was pointed out to him he disliked the process. But in a difficult field of medicine Gowers kept us well informed, and it was through his intervention that Hughlings Jackson's delightful series of "Neurological Fragments" appeared in our columns for many years—veritable chips from the workshop of a master mind. But before the "Fragments" appeared we had published many of Hughlings Jackson's important communications in our columns, the two last illustrating well the range of this remarkable man's work. The former dealt with eye symptoms in locomotor ataxy, and the second was an address on the psychology of joking in which a solid and unpretentious philosopher defended with great humour the value of punning. His argument in his own words is :—

"I say that the process of all thought is double, in degrees from a stereoscopic unity of subject and object to manifest diplopia (two objective states for one

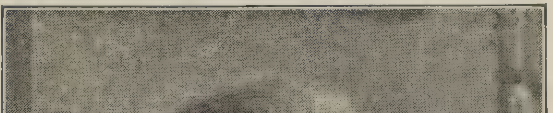


FIG. 39.—HENRY POWER

subject). The process of all thought is tracing relations of resemblance and difference from simplest perceptions—to say what a thing is, is to say what it is like and unlike—up to most complex abstract reasoning. The formula of the charicature of the normal process of thought is the 'pretence' of some resemblance between things vastly different—from punning where the pretended resemblances and real differences are of a simple order, up to humour where both are highly compound. We have the 'play' of the mind in three degrees of evolution, three stages of exceedingly complex incongruousness." (Fig. 40).

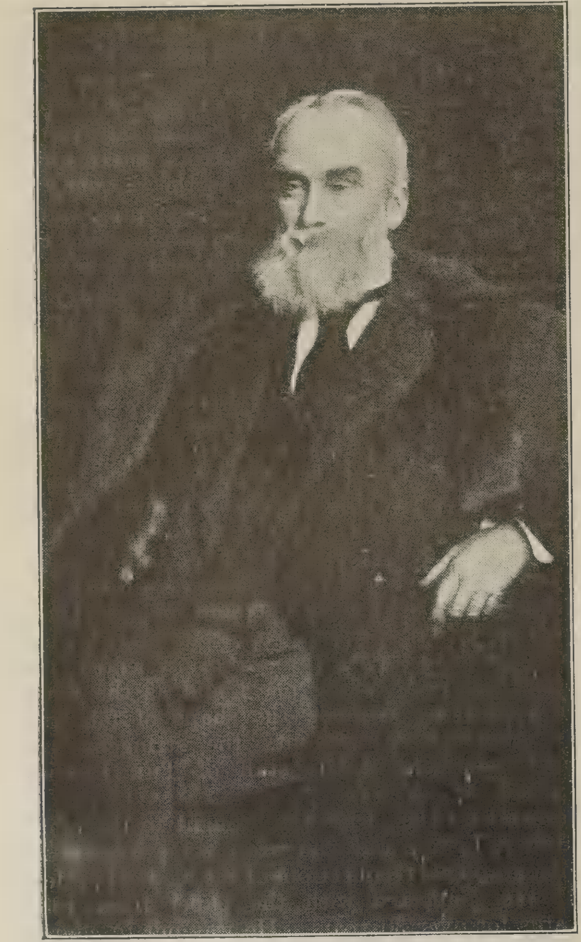


FIG. 40.—HUGHLINGS JACKSON.

For an extended period Dr. Coupland was our general adviser in clinical medicine, until he was succeeded by Dr. F. J. Wethered on his appointment to a Commissionership in Lunacy. A cursory view of the matters that came before him is furnished by the résumé of clinical progress in the 'eighties, and no member of the staff was more frequently consulted, or called upon to formulate early opinions upon new departures. Mr. W. H. Battle was the editor of the Mirror of Hospital Practice (of which more will be said briefly), while the late Sir Alfred Pearce Gould became the principal leader-writer on surgical subjects ; Vivian Poore wrote regularly in an editorial capacity on medicine in connexion with public health, and the early articles on electro-therapeutics were from his pen ; Dr. Dudley Buxton's exhaustive summaries of the developments in anæsthetics, and Sims Woodhead's similar treatment of bacteriology, enabled us to keep our readers up-to-date in two sections of medicine that were at that time progressing in different and highly technical ways. Bulstrode and Shirley Murphy were our advisers on public health on such terms as their official positions permitted. To both THE LANCET was and is under unpayable obligations. To recall here the manner of man that Shirley Murphy was would have a flavour of impertinence, so recent is his death and so widely known his surpassing merit as a sanitarian. But Bulstrode is in different case. He was in full exercise of fine qualities as administrator, technical adviser, and scientific investigator when he died suddenly. He was permitted by his chief, Sir Richard Thorne Thorne, to keep THE LANCET advised on public health matters, and his clear articles upon situations as they arose were of special value to our public.

THE INFECTIOUS DISEASES NOTIFICATION ACT.

As an example of Bulstrode's work, and also of the endeavours of THE LANCET at the time, there may be adduced a series of editorial articles upon the difficulties which arose under the Infectious Diseases Notification Act. The Act came into being in 1889, but its working was found difficult not so much because the measure was unpopular with the public—though it was that—as because a strained position arose between the private practitioners and the State officials. This became quite serious, and time did not relieve it. In 1895 we were so frequently asked to advise correspondents in difficult and delicate positions, that it was decided to collect together in one set of articles the principal points as to which procedure was doubtful. It seemed certain that actual misunderstanding on both sides was occurring alike as to the meaning of the Act and the spirit in which it was interpreted, and Sir Richard Thorne Thorne, then Principal Medical Officer to the Local Government Board, desired to have the various matters thrashed out. Accordingly we placed on record in Bulstrode's articles the various decisions and official interpretations which had been given with regard to difficult points, and reading those articles now we can see that neither the medical officers of health nor the general practitioners were at first quite certain what new obligations had been imposed on them. For example, some local authorities believed that the Act laid the duty upon the medical officer of health to make domiciliary inspections, and when many of these officers realised that the Act put no obligation of the sort upon them they found that neglect to perform it was quoted against them in questions of adjustment of salary. And in those days the tenure of office of medical officer of health was far more precarious. The situation was set right by a definite statement of the Local Government Board that the Infectious Diseases Notification Act of 1889, where adopted, conferred no new powers upon the medical officer of health, being "designed to afford him such immediate information of the outbreak of infectious diseases as will enable him promptly to take such measures as are prescribed, &c." This Order made it clear to the local authorities that where an outbreak of any contagious or infectious or epidemic disease of a dangerous character had been notified it would naturally become their officer's duty to make personal inspection, but that he was not expected or desired to make domiciliary visits.

The advice given in THE LANCET with regard to domiciliary visits shows well how delicate the relations on the passing of the Act had become between the State officer and the private practitioner. Stress is laid on the fact that in the majority of instances in which cases of infectious disease have been notified there is no need for the medical officer to personally inspect the sick chamber, while this should only be done with the consent of those having charge of the patient and after securing the coöperation of the general practitioner. Throughout all the articles it is urged upon the medical officer of health to use the help of the medical practitioner in attendance on the case, and the same principle, it is pointed out, should be extended to the inspection of premises. In short, the view is strongly held that the customs usually governing the relations of medical practitioners to each other should prevail between the medical officer of health and the general practitioner. Our articles stated that it was not the intention of the Act relating to notification to lead to the visiting and examination of sick persons in ordinary circumstances, in spite of the fact that public health authorities might consider such measures to be the only way in which the correctness of certificates of notification could be ascertained. The Local Government Board upheld our view, whose correctness was indicated by the fact that no increase of salary came to the medical officer of health by the passage of the Act, implying that the duties of a private practitioner were not to be added to the public responsibilities. The general conclusions arrived at are worth recording, for they show the places where disputes had arisen, and may serve as a useful reminder to legislators how inexpedient it is to pass laws without ascertaining from those who really understand professional situations how far ambiguity of words or meaning may lead to mystification.

The conclusions, which at once settled much disputing, were :—(1) The question of a personal visit by the medical officer of health is a matter to be decided by the medical officer of health, he being the judge as to what constitutes an "outbreak" for the purpose of the Order relating to his duties. (2) No duty attaches to a medical officer of health to "visit . . . the spot" in every case of notified disease. (3) When he deems it his duty to pay such a visit he should remember that, apart from a magistrate's order, he cannot claim a right of entry on such ground. . . . (5) The medical officer of health has no right to inspect patients, and, as such inspection is, as a rule, very undesirable, it should not be contemplated even when it is necessary, except after communication with, and if possible in coöperation with, the medical officer in attendance on the case.

THE MIRROR OF HOSPITAL PRACTICE.

There are many instances in which certain features of THE LANCET which had been introduced to meet the wants of the time, and which had flourished bravely while those wants existed, disappeared from our columns when the purpose for which they had been planned was met. There was no department of THE LANCET in the early days, when its scope was decided upon, of which there was more reason to be legitimately proud than that entitled, "The Mirror of Hospital Practice." This department was the outcome of the intention, forming part of the first programme of the paper, to publish what went on inside the walls of hospitals, the underlying, and sometimes the avowed, idea being that it was necessary to let in light upon dark places. It follows that at first those who discharged the duty of attending the hospitals with a view to report hospital life, remained strictly incogniti, and especially was this necessary after the frankly libellous tone in which the first articles were written. Many of the early reports were furnished by members of the staffs of the various hospitals, and sometimes by the residents and assistants, who realised the need of radical reform, saw that it would follow upon plain speaking, but could not be expected to disobey the strict injunctions of their seniors openly. There is no doubt that the improved tone of the comments upon operative procedure reflected the reforms that were taking place, and as the notes upon operations assumed the shape of fair and often appreciative accounts the stringent ban against members of the staff of THE LANCET was lifted.

Fernandez Clark, who was brought to the office by Robert Liston, and who wrote some interesting autobiographical recollections of the medical profession, was connected with the paper from 1834 onwards for over 30 years. He was put in charge of "The Mirror," and his accounts of operations at the hospitals were frequently supervised by the surgeons concerned. The anonymity of his other collaborators and his more immediate successors has been so faithfully kept secret that to-day no one can recall their names. When in 1872 Tweedy became the editor of "The Mirror" circumstances had much altered. At all the hospitals the representative of THE LANCET was made welcome, save during that unlucky period, to which allusion has been already made, when a London consultant surgeon was made the subject of an unjustifiable attack. Our relations with the staffs of hospitals were then, for a time, made difficult, and only the tact and popularity of the editor of "The Mirror" re-established them again on a pleasant footing. We need only mention the last two surgeons who edited "The Mirror" to show how important a section of the paper it was considered. They were Sir John Tweedy and Mr. W. H. Battle, who resigned in favour of Mr. Willmott Evans just before that section of the paper was discontinued. Mr. Battle assisted us in this way for ten years, and his pithy comments upon the questions arising from the reports he was making were very instructive. We may give as an example the notes upon the operative treatment of abdominal diseases at a time, be it remembered, when methods in common vogue were giving unsatisfactory results. Readers were encouraged to try new and generally bolder plans in cases, for example, of "acute abdomen" and intussusception, by having before them a summary of cases under other surgeons.

But it was Mr. Battle himself who pointed out that the purpose for which the department was founded had ceased to have its original significance. First there was no particular reason to send a representative of The Lancet to the hospitals when the staffs of the hospitals were willing to communicate their interesting cases without an intermediary, and when all idea of detective work had vanished. Secondly, the enormous growth of operating had reduced to a perfectly ridiculous point the possibility of any representative of The Lancet being present at the right hospital at the right moment to see the right operation. When "The Mirror of Hospital Practice" was started the large hospitals had a day set apart for operations, and save in cases of emergency the patient to be operated upon was prepared for the ordeal on that day. At a large metropolitan hospital the major operations for the whole week, excluding the emergencies, were often performed between two and half-past four on a particular afternoon. Then at the larger hospitals two afternoons were set aside for operating; and at last, in response to the enormous progress made in surgery, operations became a part of the ordinary procedure of the hospitals, and there was no possibility of any representative of The Lancet being certain of seeing any really new departure. The editor of "The Mirror" was often informed by intending operators of a procedure they desired to take which appeared to be of a radically new nature, but even so it was usually preferred to leave the drawing up of the full report to the operator. Further, the general outlook of scientific surgery had so altered that a surgeon often no longer wished to record a single operation. His work he felt had been done in association with that of others and he preferred to allow it time for collation. The real meaning of modern surgery would have escaped comprehension in records of isolated events.

The Doom of the Unqualified Assistant.

In 1893 there were a good many scandals in connexion with the improper use of unqualified assistants by medical men. The unqualified assistant was a survival of the old days of apprenticeship, when a medical man took under his care and very frequently into his house a commencing student, whom he instructed in the principles and details of practice, the time so spent counting in the lad's educational curriculum. The Medical Acts had done away with apprenticeship, and although return to it was advocated by many, no advantages could ever be claimed for it commensurate with its drawbacks. It was felt that it would be fatal to an educational system, now rationally arranged, to admit a scheme which left so much to chance. Setting aside the question of whether empirical training in therapeutics before the acquisition of a scientific ground-work can ever be valuable to the better students, apprenticeship left it to chance whether the tyro obtained any instruction worth having. He learned to dispense up to a point, he was present at a certain number of labours, he was taught to vaccinate, but not well taught, and perhaps became familiar with some form of book-keeping. Unless, however, his time was spent in a manner that constituted something of a public abuse—that is to say, unless he practised as a general practitioner, without a qualification and covered by a principal—his occupation could not have been of service to him after the medical schools had regularised their educational courses in conformity with the Medical Acts.

But in many cases he became his master's unqualified assistant, and by developing the duties of the surgery attendant into those of the general practitioner he grew to be an undeclared partner in the practice. He was paid by salary—low salary—and not as a partner, but the public had no doubt whatever of his status as a qualified man. The supply of apprentices dropped off as the medical curriculum was properly arranged, when their place was taken by unqualified assistants, who for the most part had given up the idea of obtaining a place on the Register, but who had in many cases done a full course of medical training. Their employment was frequent all over the country, and where supervised their services were of great value both to their employers and the public. But unfortunately grave abuses began to arise. Some doctors left all their club practice and much of their midwifery to such assistants, and the public did not obtain the quality of service which was being paid for. And in large cities multiple practices began to be run by these unqualified men. They were the employees of one registered practitioner, who covered their activities, and, perhaps to the prejudice of neighbouring colleagues, took their earnings. By 1897 the position had come so prominently before the General Medical Council that measures were taken to set the whole matter right. The Council resolved with practical unanimity to state clearly that the employment of an unqualified assistant, save in the form of a pupil, would be considered by the Council as "infamous conduct in a professional respect," to be punished by removal from the Register. The cases of abuse had many of them been reported in The Lancet, where the action of the Council was anticipated, but the immediate result was very hard upon an unfortunate class, and we were found deploring the precipitancy of the reform while approving its object heartily. Undoubtedly a very large number of our supporters were seriously embarrassed by the necessity of dispensing with services which they valued highly, and which in many instances were wisely directed and controlled to the benefit of the public; they were disappointed that we were compelled to approve of a measure of reform which, as a matter of fact, was designed to meet unprofessional situations which had been described in our columns.

Of the main decision of the Council we entirely approved. It was a complete anachronism that half or a third of the work of the medical profession should be done by persons not in the strict sense of the word medical practitioners. Such an arrangement was deceptive as regards the public who thought they were getting the advice of qualified persons, and grossly unjust towards young practitioners who should find their first and most valuable work in the field of private practice under the supervision of an intelligent and experienced principal. The General Medical Council did its duty by legislating for the suppression of all inferior and unqualified forms of practice, and those who had the interests of the medical profession at heart recognised this and applauded its action. May we add that our old friends returned.

THE BATTLE OF THE CLUBS.

Exactly when the conditions of contract practice began to be felt by medical practitioners as thoroughly unjust and to be recognised by the more intelligent of the public as inefficient it would be hard to say. The old-fashioned club practice did not break down at any particular date in any universal way. On the contrary, in communities which it suited and in hands where contract practice was sympathetically and intelligently treated, there were circumstances about it which gave it considerable appeal both to the practitioners and to the patients. But this was mainly in rural districts where the mass of patients affected was much smaller, and where close relations between the doctor and his charges were better preserved. In the larger towns, and in connexion with workshops, where masses of operatives were aggregated, the rules and customs under which doctors were accepting capitation fees for medical attendance were often thoroughly oppressive.

If there is one date more than another when a general movement against contract practice came to a head, it occurred in December, 1895, when the medical men of Cork took the decisive step of forming a benefit club to be managed entirely by themselves. The issues at Cork were exceedingly simple. Large tradesmen, well-salaried clerks, and bank managers had joined medical clubs, and were demanding to be treated upon the same terms as the artisans and the labourers, and in some cases it was attempted to make small yearly fees cover attendance, in addition, upon every member of the subscriber's family. The medical officers of the clubs protested, found their protests unavailing, and resigned. The clubs retaliated by importing new medical officers into Cork. The medical profession of Cork rallied round the dismissed officers, and the students proceeded to infuse liveliness. The medical men concerned met delegates from the clubs at a conference at which free acknowledgment was made that the medical profession had substantial grievances, and the hospitals of the city were drawn into the battle. While this dispute was receiving considerable attention in the lay papers, the letter-bag of THE LANCET was swelled with stories of similar treatment meted out to the profession at other centres, and we decided to make an immediate inquiry into the position of the medical profession in regard to the numerous societies which in certain districts were providing medical aid for the sick poor.

These societies were increasing in number, and the hardship to the general practitioner was growing in proportion. Mr. Adolphe Smith was commissioned by THE LANCET to make an inquiry on the spot at a wide variety of representative centres. Large cities and small manufacturing and agricultural centres, a fashionable health-resort, a populous port, and a cathedral city were selected as forming types from which information should be collected for purposes of sifting and comparison.

It was soon seen that different orders of clubs or associations had to be dealt with. There were societies having as their primary objects schemes for life assurance only, adding to them a project for medical aid as an inducement to the public to enter their fold. Others were constituted with the simple intent to secure for the public medical attendance at low rates, which was an excellent programme if it could be carried through without oppression of those who rendered the attendance, but their object was already largely met by the sick-clubs managed with great capacity and thoroughness by many practitioners. Some of the societies were well organised, in that an effective attempt was made to ensure that only the truly necessitous were the recipients of medical charity. Others were uncommonly ill-managed, in that all persons, no matter what their condition of health might be, or their means, were invited to enrol themselves that they might be treated medically for a penny or two a week, drugs included. The profits made by these companies, though earned by medical work, never, or hardly ever, found their way either to medical men or medical institutions. In certain of the institutions, the management of the association having been and remaining entirely in lay hands, the interests of the medical officers suffered severely. They were badly treated by the persons to whom they dispensed charity, their emolument was small, their work was hard, and the patients who could reasonably have been expected to pay them as private clients were systematically exploiting their services.

Mr. Smith's reports were published in THE LANCET week by week, when the conclusions which were come to proved clearly that the whole system of contract practice as existing in the country at that time was riddled with abuses. Sporadic improvement undoubtedly followed the publication of Mr. Smith's articles. It was seen from their general tenour that the lofty view taken by certain members of the medical profession that it was disgraceful to be the medical officer to a medical aid association was not endorsed, while the principal recommendation was that medical men in each neighbourhood where the club system was replacing the practitioner's private sick-clubs should meet and arrange upon a common course, when the situation could be considered from every side. In fact, the conclusions come to had much in common with the arguments lying behind the interim report (Dawson Report) of the Medical Advisory Committee to the Ministry of Health, though the principle of national insurance was not thought of as a practical means for unifying the interests of the medical profession and the public. The articles were issued as a pamphlet, entitled "The Battle of the Clubs," and when Mr. Lloyd George, as Chancellor of the Exchequer, introduced a measure for national insurance into the House the facts put forward in them were much quoted by his supporters and his critics, and more than occasionally the conclusions were perverted by both while feeling was running high.

Some Generalities.

Perusal of The Lancet during the 20 years which preceded the war, that is to say during the first two-thirds of the period under notice, demonstrates the many directions in which the conditions of life had altered and were altering all over the world. The war is generally spoken of as having introduced a new order of things, bringing as its sequel interrelations of peoples, mental states, conditions and prices, which rendered former theories of sociology false or unworkable. On the analogy of medicine it may be surmised that many of the changes under which we are now living had begun before the murder at Sarajevo, and that the effect of the war was sometimes to confirm, and sometimes to modify, a train of events which had already started.

During the 20 years in question there were held International Congresses of Medicine as a whole, British and International Congresses on Tuberculosis, Congresses of Surgery and Hygiene, and at these there were discussed many of the problems which now assail us. Endocrinology became an important subject in therapeutics, and at this moment opinion is divided upon points which presented themselves 15 years ago. The passing of a Vaccination Act in 1898 permitting persons to contract out of a safeguard in public health was a set-back to scientific medicine in our opinion, and to-day the same arguments are being used in support of, or in opposition to, a conscience clause. But there is far more evidence upon which to discuss these things, and absence of the old dogmatism which denounced as quackery or heresy anything done by those of dissentient opinions.

Great changes were effected in the conditions of service for military medical officers, and the naval medical service was much improved, but in neither case have painstaking attempts to meet the requirements of candidates succeeded in their main object. It is clear that here a situation which seems to have been considered over and over again from every point of view still awaits reform. The South African war taught us many lessons of military hygiene, and the extent to which civilian medical men were drawn upon proved that if we were involved in a greater and grimmer struggle the Royal Army Medical Corps, as constituted in 1898, would form but a handful among the doctors required. The Territorial system took note of the position. The South African war gave an opportunity, which was not fully taken, to demonstrate the extreme value of Sir Almroth Wright's researches. Anti-typhoid inoculation forms a grand chapter in pathology which can be read fully in The Lancet, and the adoption of the process by the army in 1906 was a prelude to the saving eight years later of untold lives.

Our knowledge of syphilis was incalculably advanced by Schaudinn's discovery in 1906, which was followed by the Wassermann test, and Ehrlich's introduction of arsenic preparations in treatment. With a definite causation and a new line of therapeutics organised control of the disease started, and immediately it was seen that certain procedures, deemed by many medical men and a large public as essential to success, would be condemned by others, medical and lay, as contrary to public morals, and possibly not as valuable as they appeared. The disease-rate was affected recently by the world-war, but the measures taken for control are proving efficacious to some extent, and differences of opinion are being laid aside.

The ravages of venereal disease shared with those of tuberculosis and cancer the dismal honour of being more written about in our columns during this period than any other subjects, and in the matter of tuberculosis, as in that of syphilis, the measures for mass treatment had started before the war. The King Edward VII. Sanatorium was founded in 1903, at the time when a controversy was raging as to the relation between bovine and human tuberculosis. Many of the questions which were then discussed are still unsettled, but perhaps more than any one thing the incidence of tuberculosis, so dependent upon such varying social circumstances, made clear to the public that the strong advocacy of the institution of a Ministry of Health was necessary. The question came to the fore under many guises, when legislation in respect of housing, of the notification of disease and its institutional treatment, of the tenure of sanitary appointments, and of the safeguarding of children—to take a few obvious examples—were under discussion, and the Ministry arrived in 1919 (see p. 763).

The subjects thus cursorily set down indicate that during the 20 years before the war the writers in The Lancet were dealing largely with things which to-day are as topical as they were then. The war has altered the proportion of their interest, perhaps, and has made measures, that were not then considered, either easier or harder to introduce. But of one thing there can be no doubt. The public has become far more alive to the perils of unqualified practice. During the 20 years we have passed under notice these were particularly widespread, and the revelations in The Lancet of some of these, notably of abortifacients, were of real public service.

An Unpleasant Experience.

At the beginning of the year 1908 The Lancet had the unpleasant experience of unsuccessfully defending an action for libel. It was an expensive experience, for the case lasted several days and eminent counsel were engaged on each side. The action arose out of some comments which were made by THE LANCET upon the words of a coroner, who stigmatised a certain kind of dealing as a fraud. The inquest was reported in a well-known London paper, and the circumstances were made the subject by us of a general denunciation of quackery. The jury, with the hearty approval of the bench, took 20 minutes to agree that our article did not constitute fair criticism, but was an attack on the plaintiff's character. For the information of our readers, and in proof of our perfect good faith, we published the proceedings at full length in our issue of Feb. 1st, 1908. The case is worth reading. Our legal position in appealing against the verdict would have been one of considerable legal complexity, and in the end it was decided not to do so. Therefore, to complain of the issue would have been childish then, as now, but the Editor did not understand by submission to a verdict which surprised him and our readers much, that attention could not be drawn to our position, that is to the necessity that a journal having the objects of THE LANCET, and receiving the support which it did from the medical profession, should take the attitude that was taken, whatever errors in detail might have been committed. It was clear that medical practice of the kind which was fully admitted to have occurred, by whatever word it was designated, must be condemned by the medical profession, and therefore by a journal taking up the position of speaking for that profession. If the situation arose again, warned by experience, we should employ expressions not so easily open to challenge. We had many urgent recommendations to appeal against the verdict, and our legal advisers were not adverse to such a course, while many members of the medical profession suggested the institution of a subscription as a guarantee against further expenses. The Editor was perfectly clear that, if we proceeded to appeal, he would be at the necessary expense himself, but in the end it was decided not to appeal. For the paragraph as written contained an indefensible inaccuracy, and this, in the case of a new trial, would have remained as an embarrassment in discussing the really important features of the case.

This was the first libel action which THE LANCET had lost for a very long period, and, as plain speaking had offered many opportunities for legal rejoinder, the fact should be recorded that, for nearly 90 years, our interests were watched over by the same firm of lawyers. Henry Sandford, who died in 1919, aged 86, was the senior partner of the firm now styled Potter, Sandford and Kilvington. This firm had charge of all the serious legal embroilments which characterised the first ten years of the life of the paper, and at that time included a cousin of the first Thomas Wakley.

THE PRINTING DEPARTMENT.

The old associations have been similarly preserved in the printing department of the paper. At the earliest stage a printer's boy, James Lionel Kerslake, in the firm of Savill and Edwards, used to hold a candle at the tall desk where the Editor was correcting proofs, at a period when gas had not been introduced. He entered the employment of THE LANCET when the paper was set up—as it was for three-quarters of its life—on our own premises; his son-in-law, Mr. William G. Martin, became our head printer; and after 25 years' service in that capacity was succeeded, in 1915, by Mr. Frederick W. Martin, his son, and our present head printer.

THE THIRD THOMAS WAKLEY.

On March 5th, 1909, almost exactly two years after the second Thomas Wakley had died at the advanced age of 86, the son followed the father to the grave in his fifty-eighth year. The third Thomas Wakley was born on July 10th, 1851, and was an only son. He was educated at Westminster and at Trinity College, Cambridge, and at school distinguished himself alike in work and games. He obtained a leaving exhibition, when his father did a graceful action that might well be followed by other parents possessing the means in similar circumstances, for, while desiring his son to keep the prestige which he had won, he forwarded to the boy coming next in the competition a cheque of the value of the leaving exhibition which he just failed to attain. It was no secret to those who knew "Young Tom," as everyone called him to distinguish him from his father, that his resolution to enter the medical profession and follow the footsteps of his forbears was not dictated by choice, and while at Cambridge, and after passing the first M.B., he definitely relinquished the idea. The association with the paper, however, proved too strong for him, and when he was 30 years of age he entered as a medical student at St. Thomas's Hospital and qualified as L.R.C.P. Lond., which in 1883 was definitely a double qualification, though he did not proceed with the medical curriculum at Cambridge. The reason for his late entry as a student was a serious illness following a bicycle accident. For some days his life was in danger as the result of a slight fracture at the base of the skull, and when slowly restoration to health was established it was found that the sight in his right eye was permanently damaged. Immediately after qualification he entered the office of THE LANCET and began the life of a journalist under the tutorship of his uncle and under the eye of that informal sort of editorial committee, already described, which aided James Wakley in the conduct of THE LANCET and took over his responsibilities during his last illness. For three years he profited by such routine duties, and when in 1886 James Wakley died, Thomas Wakley and his father, who had become the proprietors of the paper, worked together in its conduct, as has been already narrated. They made a good combination because their conceptions of duty were so absolutely alike while their methods were at variance, the elder being always young and impetuous, the younger being always deliberate.

One who worked daily with the younger Thomas Wakley for 16 years has written of him as follows :—

> "He strove above all things to be fair, and nothing gave him greater pain than the inability to prove to the man whose views he could not take or whose letters he could not insert, that a sense of justice, arrived at by considering larger issues than had presented themselves to the mind of his correspondents, alone prevented publication. He was also tender-hearted, and many a little flout and jeer, legitimate enough, perhaps, but unnecessary, was removed by his editorial pen because he feared that pain incommensurate with the offence would be inflicted. Lastly, he was extraordinarily accurate, he could bring a good memory to bear upon minute details, with the result that no article passed through his hands without a severe test of its qualities. He wrote but little himself in THE LANCET, as he held that it was exceedingly difficult for a man who wrote not to take a side. The more absolutely unprejudiced a writer holds himself to be, according to Wakley's belief, the more probable is it that unconsciously he will lean to a favourite view or will suggest a policy for trial in particular issues that is in accord with the general character of his own disposition, but not necessarily in accord with the demands of the situation. Distrust of anything like enthusiasm, which is thus implied, was a marked quality in Thomas Wakley, but when he was convinced that the right cause demanded plain speaking, he welcomed that speaking and preferred it eloquent."

In the *British Medical Journal* the following appreciation would have given its subject great pleasure :—

> "It would not be exactly our province to estimate Thomas Wakley's career as a journalist further than to say he worthily maintained the honourable traditions of the great journal whose fortunes he was called upon to direct. But there was one side of his work to which we desire emphatically to bear testimony. The fairness of mind for which he was so well known among his friends led him into relations with ourselves of a particularly pleasant sort. As a result both journals came to recognise that while keen rivalry was the best incentive to enterprise, such rivalry in no way precluded the existence of cordial good feeling between those responsible for the two journals. He was a man who by speech and manner inspired absolute confidence in his straightforwardness, and longer experience only proved that this was the root quality in his character. His word was his bond and he was constitutionally incapable of a mean action."

Outside his editorial work Wakley was a keen and enthusiastic Freemason and an able numismatist, and possessor of a valuable collection of coins.

THE CLOSE OF THE CENTENNIUM.

WHILE this issue of THE LANCET was passing through the hands of the printers one compositor inquired from another, "How big is this Centenary Number going to be ?" and received the advice that he should "look how big it was last time." We see no reason why 100 years hence the advice should not be followed, for in reaching the last stage of a history of 100 years of effort we find evidence of a vitality we wish not to talk about, but which we hope is clear to others.

THE CHANGE OF OWNERSHIP

The third Thomas Wakley married late in life, and his only son was but an infant when he died. No male Wakley had a share in the property or was either a medical man or a journalist, and the paper passed into the hands of a private company. Dr. Squire Sprigge was appointed Editor in succession to his late chief. Dr. H. P. Cholmeley continued as assistant editor, and S. A. Vasey was in charge of the chemical investigations. Mr. Charles Good remained as general manager. Dr. Cholmeley retired in ill-health, from which he has happily recovered, and his place was taken for a period by Dr. N. G. Horner. Dr. Cholmeley, the author of "The Life of John of Gaddesden," had been on the staff of the paper for 13 years, and his retirement was deeply regretted. His wide knowledge ran along unexpected paths, and his impatience of ignorance was veiled in his editorial articles by the facile employment of classical analogies. No one was ever by temperament less adapted for journalism than Cholmeley, but he worked in a routine that never was congenial with an air of amusement at himself and everyone else, and the occasional articles which to-day appear from his pen have all their old charm. Dr. E. C. Morland became assistant editor in 1915.

The present Editor is Sir Squire Sprigge ; the chairman of the Company owning THE LANCET is Sir Ernest Hodder-Williams, and the general manager is Mr. R. E. Sare. We will not detail the names of the staff. In the earlier narrative the identity of collaborators formed part of the history—indeed, their personalities have largely made up the history. At a middle place the names of the staff were given as the readiest way of showing that while the developments in science were of a certain scope, we had friends who could meet our needs in each direction. And at this closing place we render in the warmest way thanks for the general and generous manner in which workers on all scientific and administrative lines place their wisdom, for the most part anonymously, at the disposal of our readers. Without such aid, given week by week, it would be impossible to record progress. They had, as has been shown, much ground to cover. Nor is it necessary to call attention to individual communications. The original articles at this point form an integral part of modern medicine, whose story we and many contemporaries, with general or special purview, are trying to tell, and the writings can be consulted easily, the messages being in many instances familiar.

The impossibility of summarising the scientific contents of the paper was recognised in speaking of those contents as they presented themselves 30 years ago, and the impossibility remains. This chapter of medical history must confine itself to two things, as they are reflected in our pages—namely, the evolution of the profession, and the part played by the profession in public events and the war, with certain points in the domestic life of the paper.

THE NATIONAL INSURANCE ACT.

The year 1911 was memorable for the most important measure of social legislation ever attempted in this country. On May 4th there was introduced in the House of Commons a Bill to provide for Insurance against Loss of Health and for the Prevention and Cure of Disease, containing 115 clauses and 9 schedules, and having emerged in this form complete and perfect from the fertile brain of the then Chancellor of the Exchequer. Its general principles meeting with wide approval, the second reading was agreed on without a division on May 29th, and on Dec. 16th the National Insurance Bill received the Royal Assent and became an Act. During this brief period of eight months no systematic review was possible of a measure at once so complex and unprecedented, the House of Lords remaining content with mere improvement in drafting, while the medical profession was rent by conflicting interests and quite unable to secure effective consideration of the grave principles involved. Time after time THE LANCET insisted upon the grave danger of forcing through without adequate discussion a scheme which proposed to improve the public health by a vast extension of club practice. The British Medical Association took in hand the task of formulating the minimum demands which must be conceded by the Government before the medical profession could cordially coöperate in working the scheme, and a mass meeting of the medical profession, held at the Connaught Rooms on June 1st, set out the six cardinal points around which all further discussion centred. These points were in brief:

1. An income limit of £2 a week for those entitled to medical benefit.
2. Free choice of doctor by the patient, subject only to the consent of the doctor to attend him.
3. Medical and maternity benefits to be administered by Local Health Committees and not by friendly societies.
4. The method of remuneration of medical practitioners adopted by each Local Health Committee to be according to the preference of the majority of the medical profession in the district.
5. Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service.
6. Adequate medical representation among the Insurance Commissioners, in the Central Advisory Committee, and in the Local Health Committees, and statutory recognition of a Local Medical Committee representative of the profession in the district of each health committee.

The turning point in the negotiations was undoubtedly reached when, at the invitation of Dr. Addison, Mr. Lloyd George attended a session of the Representative Body of the British Medical Association and declared his conviction that the whole-hearted support of the medical profession was the first condition of the success of the Bill. He then spoke in favour of the principle of free choice of medical man, the vested interests of existing club doctors being respected, and of the appointment of a medical man as one of the Insurance Commissioners; he expressed his personal preference in favour of the freedom of medical men from the control of the friendly societies, provided that the medical profession succeeded in persuading the House of Commons to vest all the charges for medical benefit in the Local Health Committees. Mr. George pointed out that the rate of payment was elastic, as the Bill did not dictate the conditions, and he concurred that payment for work done might be tried as an experiment throughout the district of any Local Health Committee which agreed upon it with the local medical profession. While he held out no hope with regard to an income limit for wage-earners, Mr. George was willing to support the exclusion of voluntary contributors above the income-tax limit, and with a few graceful parting words he acknowledged a reception which had been thoroughly cordial.

During the autumn the stand of the medical profession was transferred to some extent from the cardinal points to a more general demand for just treatment, while the actuality of the Government's willingness to have influential medical opinion represented on the Insurance Commission was more than proved by the dramatic appointment, as deputy-chairman of the Commissioners, of the medical secretary of the British Medical Association. Although THE LANCET felt the danger that by the Act it was proposed to buy the profession of medicine outright at the lowest possible price, nevertheless, it was pointed out in our columns by a careful critic that the prices asked for practices in our advertisement columns were steadily rising, whereas the effects of the Insurance Bill should have caused a rapid fall of value, especially in cash practices. The end of the year was marked by the enthusiastic protest meeting at Manchester at which it was decided that to meet the situation members of the profession should refuse to form a panel under the Bill or to take any duties which the Bill proposed to assign to them, and at this point a National Medical Union was formed to strengthen the hands of the British Medical Association in safeguarding medical interests. At the final passage of the Bill in the House of Lords, Lord Haldane, who had charge of it, frankly expressed his assurance that there would be no difficulty in getting doctors to do the work, inasmuch as it was often extremely tedious for young medical men to secure a start in their profession and to get their names placed upon the panel would give them an opportunity which they did not at present possess. Lord Midleton, however, voiced the widely-felt fear that the general extension of contract practice would make intolerable demands on the medical profession.

The question of remuneration remained in abeyance, and only just before the Act came into force on July 15th, 1912, appeared Sir William Plender's much delayed report on medical remuneration in certain selected areas, from which it appeared that the average annual gross income derived from patients attended under contract amounted only to 4*s*. 2*d*. per head of the population, and this report naturally did not help the British Medical

Association on the eve of its meeting at Liverpool, for the findings of the report were misunderstood and unfairly used by the political press. The Liverpool meeting continued to adhere to demands which the Government stated could not be conceded, and alternative plans were developed for a capable public medical service acceptable to medical men and beneficial to the public who, as THE LANCET reiterated, must not feel that they had been left in the lurch by the medical profession. These plans never materialised. Without admission of reconciliation either to the principles or to the working of the Act, active opposition to it gradually diminished, the Commissioners taking up an attitude of sweet reasonableness which proved disarming. The Special Commissioner of THE LANCET, who visited different centres during 1913 and 1914, found little hostility to the principles of the Act, although its administration was open to criticism in many respects. He was impressed with the enormous good which the fight had done in bringing together the members of the medical profession as never before. The great majority of practitioners were satisfied with the financial result and resentment was dying away. This was the situation on which the war intervened, and the story cannot be taken further with any advantage inasmuch as the position may be altered in the future.

INQUIRIES INTO PUBLIC MATTERS.

Of the last Commission instituted by James Wakley (see p. 723), who was strict in using this title for the inquiries which he set on foot, two of the most important were undertaken by Mr. Adolphe Smith, whose reports on a large range of subjects and over many parts of the world have formed for many years instructive reading to the medical profession and also to a much wider public, while reforms have followed frequently on the indicated lines, his help and that of THE LANCET being acknowledged. It is desired here to record briefly some of the work which he has undertaken for us. His report on the spread of disease through laundries revealed a common danger, and the detection that table napkins from a St. James's-street club were being dried in a Peckham garret over the bed of a small-pox patient was a telling episode in his account. The report on the contamination of uniforms led to investigations being made at the Army Clothing Depôt, questions in the House of Commons, and immediate disappearance of a scandal. Mr. Smith made personal visits to cholera centres in Europe at different times, it being necessary that our population should know that this country was not without its risks and that forearming was only prudent. From 1892 to 1894 he followed the cholera from town to town, throughout Europe from Calais to Constantinople. At the same time the few cases of cholera which occurred in England were not neglected, and we published the results of special inquiries at Hull and Grimsby. A curious anomaly in our local government was then discovered, for while the State incurred all necessary expenses to obtain information about the rare English cases, not a penny could be spent to investigate the widespread epidemics prevailing on the other side of the channel and only a few miles away. Therefore our Commissioner dealt in detail with the cholera in Paris, Brussels, Antwerp, produced spotted maps of the ports in most constant communication with England such as Calais, Boulogne, Dunkirk and, above all, Havre, where the epidemic was second in severity to Hamburg. But the most interesting cholera map was that of Hamburg itself. Not only was the case-rate and death-rate given for every district, but the nature of the subsoil and the average income of the inhabitants were given. The articles showed the progress of epidemiology since cholera was dealt with in detail some 60 years before (see p. 709).

Mr. Smith visited at different times Continental centres, and many American cities, reporting on their sanitary management, or on the particular epidemic crises which had brought him on the scene. Two investigations on the spot into the condition at the Chicago stockyards were made by him, the first in 1895 and the second, and more favourable, four years later. The revelations caused a *furore*, they were copied into the European press, and were made still more public by a novel, "The Jungle," in the writing of which the author, Mr. Upton Sinclair, acknowledged his obligations to our Commissioner. As a sequel Mr. Smith made a tour of famous abattoirs and dealt with the slaughter-house conditions at the different centres.

Two other out of many investigations initiated by the paper and carried out by Mr. Smith should be mentioned. The first concerned tailors in the East End of London and led to the nomination of a special commission of inquiry by the House of Lords. The original scope of inquiry had been confined to the circumstances surrounding a colony of Polish Jews, but the commission of the House of Lords extended the investigation, and Mr. Smith visited 150 sweating-dens in the provinces, the result being the publication of five large blue books and the institution of many changes for the better. A second valuable piece of work had its outcome in a series of articles on the free feeding of school-children in different countries. The information was particularly needed by school managers in this country, who were sorely perplexed by inability to meet the case of the half-starved scholar, and the articles were employed as evidence in the House of Commons during the debates which culminated in the measure for the Provision of Meals.

Following on the series of articles published under the heading of "The Battle of the Clubs" (see p. 755) came a set of inquiries into medical organisation, in the course of which Mr. Smith went thoroughly into all sides of contract practice at home and abroad, and was able to make suggestions which have since borne fruit. His articles, based on personal and local investigations, with the common heading of "The Organisation of the Medical Profession," were spread over the critical years, and in them he showed how well organised for mutual defence the medical profession was in Germany, France, and Belgium. At an international congress on Medical Deontology, held in Paris in 1900, all this work was discussed and full publicity given in our columns to the debates, while the Society of the International Medical Press was started.

THE WAR.

A group of medical men had a curious indication, in the fateful week preceding the outburst of hostilities, that those who continued to say that such a war as was threatened was unthinkable, and that some way would still be found to avoid it, were too optimistic. The Congress of American Surgeons was being held in London at the close of July, and from its deliberations there suddenly faded away some well-known German visitors.

With the outburst of hostilities we suffered the dislocation of business that was common to the country, and with the prolongation of the struggle we were put to the same shifts. No purpose would be served by dwelling on the various awkward positions brought about by loss of staff, shortage of paper, rise of prices, and restriction of publication, but concerning the last it should be said that nothing but a favourable memory remains in respect of the treatment that we received. We were able to keep our readers posted in all matters where the dissemination of the information was likely to be valuable to the medical profession, military or lay—and it will be remembered that more than half the civilian profession was required to serve in one capacity or another. The call by the forces on the ranks of medicine became so insistent that the needs of the population had to be kept before men's minds, and the contents of the paper, apart from the medical and surgical contributions and communiqués, were much occupied with all the questions arising out of the attempt to reconcile the two claims. The war also gave impetus to the full permeation of the ranks of medicine by medical women. The surgical unit at Endell-street removed official doubt that women could administer as well as operate, and paved the way for full representation of women in public capacities. The development of the movement which has resulted in their wide recognition can be read in our columns throughout a series of years, but in its earlier stages those responsible for the conduct of the paper were clearly much divided in opinion. It is long since any such division has existed, and to-day one of our most valuable and trusted lieutenants is a woman, and our staff is regularly recruited from qualified women.

The Medical History of the War, which is on its way to completion, makes any attempt to summarise the contributions to these columns quite unnecessary, and the time is too near at hand to hazard an estimate of their permanent value trustworthy. We published what we thought to be of the greatest use to our readers, and say no more of that side of our work save to draw attention to the prominent way in which the subject of nutrition came in for notice at the time, to establish itself since as a field for research of supreme importance.

Experiments in Nutrition.

Many circumstances combined to make the medical lessons of the War less substantial than was to be expected from the amount of skilled medical and surgical experience at the disposal of the nation. Only the science of nutrition blossomed as never before. The test-tube and calorimeter in the hands of the research worker were transmuted into world-wide experiments in national nutrition in which applied physiology had effective share. The publication in our columns early in 1915 of the Eltzbacher report on the Food Supply of the German People opened many eyes which had hitherto been blind to the possibility of rationing at home. "We can come through," said this report, "and the plan to starve us will founder on the voluntary coöperation of millions." The coöperation included a census of food animals and a restraint of the "senseless luxury" of eating bread and butter between meals. It was not much later that the U boats and Lord Devonport produced a similar concentration on food problems among thinking people in this country, and Sir W. Henry Thompson surveyed the food-supply of Great Britain and deduced the available daily ration. It was in The Lancet that Dr. Harry Campbell's articles on Food Economics saw the light, in which he showed with much spirit that the purchase of a picture or a Pekinese pup was not national extravagance in the same way as feeding pigs on whole-milk. It was in The Lancet, too, that an inquiry appeared into the unrestricted diet of a brain worker, the diet being no less than that of the chairman of the Royal Societies Committtee, whose appetite had evoked a playful reproach from Sir William Osler. Dr. Waller's justification was complete, for his daily average worked out at barely 2250 calories, the lowness of which surprised both himself and other physiologists. Indications of the many directions in which the effects of restriction showed themselves appeared in our columns: the disappearance of migraine, a reduction in the frequency of diabetes and of eclampsia on the credit side; an increase of tuberculosis, most startling in institutions, of rickets, of listlessness and inertia on the debit side; contrasted with the admirable health of the men living in trenches under conditions of cold, wet, strain, and anxiety, but fed like fighting cocks, the significance of food accessories gradually became apparent; the skins of potatoes and the juice of swedes came into great repute, and the straitened circumstances in Central Europe, which continued after the War, gave opportunity for the application of the new knowledge to the relief of deficiency diseases in Vienna and elsewhere. The inadequacy of our present knowledge of many important aspects of nutrition moved Prof. E. H. Starling, as scientific adviser to the Ministry of Food, when this Ministry came to an end, to plead for the creation of a permanent Board of Human and Animal Nutrition, for which he found The Lancet a ready supporter. Such a Board has now materialised, namely, the Food Investigation Board of the Department of Scientific and Industrial Research. The scope is indicated by a recent report on the Bacteriology of Condensed Milk, which was published in THE LANCET while these pages were being passed for press.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

With the first inrush of refugees from invaded Belgium we got at this office a view of the terrible position in which doctors and pharmacists in that country were involved. Not only were their practices hopelessly disintegrated, but their premises were invaded and their stores commandeered, while here and there terrible tragedies were reported, the occurrence of which in some cases was later proved to be absolutely true. The Editor of THE LANCET convened a meeting of doctors to organise relief for the Belgian doctors and pharmacists, both those remaining in Belgium and those who had become refugees in this country. A representative gathering assembled in the offices of the British Medical Association, and a General Committee was immediately formed, including the President of the General Medical Council, the Presidents or representatives of the Royal Corporations, and of the medical faculties of the universities. Officers of the British Medical Association, of the Pharmaceutical Societies, and of the National Insurance Commission immediately joined, and from the beginning the British Medical Association gave every assistance to the movement through its large organisation. Sir Rickman Godlee became chairman of an Executive Committee which included the following :—

Sir Thomas Barlow, President of the Royal College of Physicians of London ; Sir W. Watson Cheyne, President of the Royal College of Surgeons of England ; the late Mr. Meredith Townsend, Master of the Society of Apothecaries ; the late Sir Alfred Pearce Gould, Acting Vice-Chancellor of the University of London ; Sir Frederick Taylor, President of the Royal Society of Medicine ; Dr. Herbert Spencer, Obstetric Physician to University College Hospital, London ; the late Sir Frederic Eve, Consulting Surgeon to the London Hospital ; Sir Jenner Verrall, then Chairman of Representative Meetings of the British Medical Association ; the late Dr. F. M. Sandwith, Gresham Professor of Medicine ; Mr. E. T. Neathercoat, President of the Pharmaceutical Society of Great Britain ; Dr. Alfred Cox, Medical Secretary of the British Medical Association ; Sir Dawson Williams, Editor of the *British Medical Journal ;* Mr. W. J. Uglow Woolcock, Secretary and Registrar of the Pharmaceutical Society. Dr. H. A. Des Vœux was appointed Honorary Treasurer, and the Editor of THE LANCET Honorary Secretary.

The work before the Committee was obviously twofold. It was necessary to provide assistance for the members of the medical and pharmaceutical professions and their families who were refugees among us—and this was in many instances a matter of real urgency—while with regard to the victims of the German occupation, it was at first impossible to do more than despatch certain packets of medical material with which the misery created by the wholesale destruction of laboratories and pharmacies might be to some extent relieved. A start was made in this direction immediately, and packets were sent regularly to Belgium as soon as it was known that through the good offices of American and Spanish representatives the packets would be allowed to reach their destinations without interference. Along these two lines a comprehensive scheme was organised and an appeal was made to all medical men. Subscriptions were opened in Scotland and Ireland and a substantial sum of money was being received when late in 1914 Prof. C. Jacobs, of the University of Brussels, described in our columns and those of the *British Medical Journal* from personal knowledge the distress to which the allied professions had been reduced in Belgium. In the provinces of Brabant, Limburg, Liége, Namur, Hainault, and Luxemburg, our confrères were suffering terribly. At least a thousand medical men and three hundred pharmacists were known to be absolutely poverty-stricken, and others had been taken as hostages, their dependents remaining deprived of everything.

This deplorable message aroused widespread feeling, and the Executive Committee obtained early the invaluable sympathy of the American Ambassador in London. It became clear that it would be possible to transmit medical material to Belgian doctors and pharmacists upon some regular plan, and possibly to arrange for the sending of money. The first subscriptions were used as grants to relieve immediate distress in suitable cases, the responsibility for these grants being undertaken by the Editor and Dr. Des Vœux, the treasurer of the Fund. Every day for many weeks medical refugees belonging to one or other profession, or some member of their families, were interviewed by the Editor or Dr. Des Vœux, often by both. A list was made in which the positions were roughly categorised into those where assistance would clearly be required for a long period and those where, if the emergency could be met, the finding of employment was possible. Dr. Des Vœux organised a collection and distribution of clothes, and a large number of suits for men, dresses for women, overcoats and woollen and linen goods were received and distributed. At many times during the whole of 1915 the number actually dependent upon gratuities was large, but gradually the situation was relieved in different directions. The General Medical Council sanctioned the practice of qualified Belgian practitioners in England, when the registration fees were paid by the Fund, and an appreciable number of men were placed in a position to earn their livings. Others were enabled to join their own fighting forces on the Western Front, while some obtained employment through their own exertions and the ministration of friends. A number of pharmacists took advantage of classes arranged by the Pharmaceutical Society of Great Britain for the instruction in English methods of dispensing and reading and translation of English prescriptions. A gratuitous class was conducted daily by Prof. H. G. Greenish and Mr. H. S. Phillips, and the instruction enabled the members to find employment.

By the beginning of 1916 we received the welcome information from Belgium that the Fund had been of real assistance to many Belgian doctors and pharmacists, a moving message expressing "the gratefulness of their little children." And at the beginning of 1916 the first cash account showed that over £18,000 had been received. By the middle of 1916 the Fund, through the agency of Mr. Herbert Hoover and the International Commission for Relief in Belgium, was able to get into close connexion with a society, the Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés, sitting in Brussels, and from that time forward £200 was sent each week for a considerable period. The Belgian Committee was under the presidency of Dr. V. Péchère, with Dr. Laruelle, and Monsieur A. Delacre as secretaries, and Dr. H. Coppez as treasurer. The officers of the Belgian Association soon began to transmit to the British Fund *comptes rendus* of their proceedings, and it became obvious that the avowed object of the Fund would be largely achieved if money could be sent regularly to Belgium at the rate at which it was then being transmitted. During 1915, 1916, 1917, and 1918 accordingly money was sent in instalments to Brussels at the rate of at first £800 per month. Towards the end of this period the Fund began to run short of money. In July, 1918, a further appeal was organised, with the result that it was possible to maintain the subsidies until the end of the War, and to make a final distribution of £211 balance. Some generous help from America reached the Fund in the last critical stages. £25,790 were received, and £1143 were earned by investment of capital from time to time. £25,863 were given as relief, including a small sum as unreturned loans. Drugs and clothes cost £600 and printing £200. The postage was largely defrayed by THE LANCET.

At the close of 1919 Dr. Péchère paid a visit to this country in order that he might give to supporters of the Fund the thanks of those who had been helped.

THE FRENCH SUPPLEMENT TO THE LANCET.

Immediately after the war we issued a French Supplement which at monthly intervals appeared for four years. The supplements were intended to enable British doctors to understand the work of their French colleagues, and were sent to us under the editorial direction of Dr. Charles Achard, professor of pathology and therapeutics in the University of Paris, and Major Charles Flandin, D.S.O., Chef de Clinique à la Faculté de Paris. The supplements were shaped to include a general view of some big medical subject, and an original article dealing with a particular question. They had a good reception, and it is intended to continue them when mechanical difficulties in carrying out reciprocity are a little easier, for it was a particular pleasure to enter again into close communication with France, and show in a practical if limited way that medicine does not acknowledge racial boundaries.

THE MINISTRY OF HEALTH.

The Ministry of Health came into being on June 3rd, 1919, the arguments for its foundation having been told and retold till they can require no repetition. The Ministry was no new thing; in true British spirit it was a survival of what was best in many existing activities. Under the new Ministry medical work was coördinated with the work of other Departments, its activities being enlarged and redirected in object, and, in particular, arranged at one centre, thus obviating the waste, embarrassment, and disappointment associated with multifarious different and overlapping organisations. There were transferred to the Ministry the powers and duties in respect of public health of the Local Government Board and the Insurance Commissioners, and those of the Board of Education with respect to the health of expectant and nursing mothers, and children below school age. The medical inspection and treatment of children and young persons under the Education (Administrative Provisions) Act, 1907, as recently extended and amended, also fell under the scope of the Ministry, as well as the powers of the Privy Council under the Midwives Act, and those exercised by the Home Secretary under Part 1 of the Children Act, 1908.

How the Ministry has discharged its official work in respect of the general health of the people under these references, which, wide as they are, do not include its whole responsibilities, can to some extent be gauged by the regular publication in THE LANCET of the medical reports or abstracts of them, and of the various official communiqués. The medical work within the Ministry was at an early stage organised under six main headings, and reports have appeared in our columns dealing with the action of the Ministry in connexion with general health and epidemiology, maternity and child welfare, tuberculosis and venereal disease, food-supplies, sanitary administration, general practitioner services, and international health.

The full value of the scheme of medical treatment cannot be pursued unless the medical practitioner, instead of being an agent for the treatment of obvious disease, recognises and handles it in its early stages, and becomes also a missionary of personal hygiene in its preventive aspect. This is the view of Sir George Newman, the Chief Medical Officer of the Ministry; it has always found expression in our columns, and it underlies the Interim Report of the Consultative Council on Medical and Allied Services.

In many aspects and on many occasions the great question of the pecuniary support of the hospitals became a critical one under the development of the Ministry of Health and the National Insurance Acts, and it has been a source of satisfaction to find that the steady support of the voluntary system, which was so marked a feature of our youth, could be maintained not through any reluctance to a change of mind, but because the advantages of the system invariably out-weighed any to be derived from its abolition.

S. A. VASEY.

In conclusion we must record the loss that we experienced by the death of Mr. S. A. Vasey (Fig. 41).

Samuel Archibald Vasey, who succeeded Heaton (see p. 748) at THE LANCET Laboratory, died at the end of 1920, aged 58. For 28 years he had conducted inquiries of all sorts at THE LANCET, and little important work in chemistry or physics having a bearing upon health and happiness escaped his notice. The terms of reference in the laboratory were wide, and Vasey stretched them, as will be seen by a few instances of his catholic labour. In many text-books his findings have been recorded with approval, and into more than one Act of Parliament his recommendations have found their way practically unchanged. He was the author of a probing series of articles on abortifacient quackery, and the part author with Sims Woodhead of a useful report on the standardisation of disinfectants.

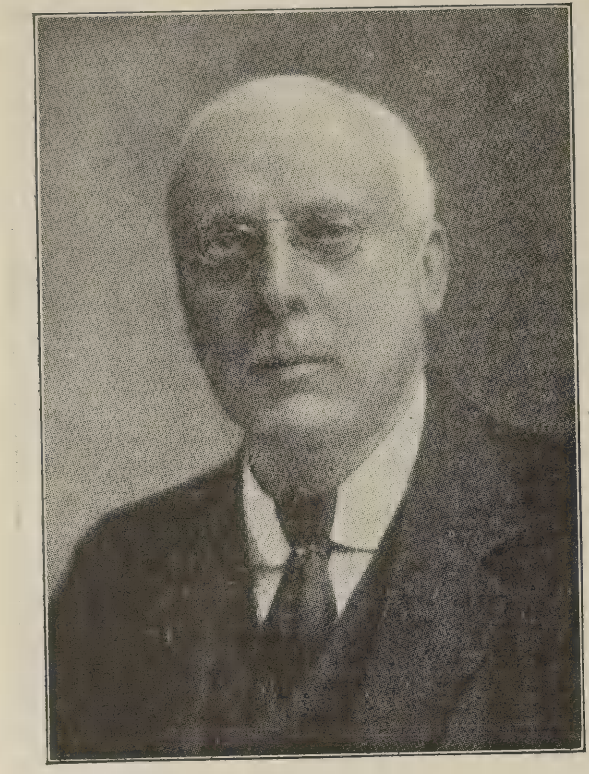


FIG. 41.—S. A. VASEY.

He made a thorough investigation into the physics of gas-lighting and into the whole subject of heating by means of gas, and in the course of the latter work he supplied manufacturers of gas stoves with much information which they required for the regulation of mechanism and the securing of economical results. He brought an intimate knowledge of air impurity, acquired in various researches, to bear upon the whole subject of coal-smoke abatement. He was the author of exhaustive inquiries into the two forms of alcohol sanctioned by the British Pharmacopœia, brandy, sherry, and into claret, the most frequent wine for ordinary drinking. He never exhausted his subjects with chemical résumés, and here he took full opportunity during his investigations at the vineyards to acquire information about soil, weather, and traditional routine, giving a broad character to the history of the three fluids. Others of his inquiries, conducted far afield, were those into the chemistry and natural history of continental waters, such as Apollinaris and Hunyadi János, and to the stock-breeding areas in the Argentine belonging to the Liebig Company.

The medical profession were further informed by his analyses on such various topics, small but of wide-ranging importance, as the nicotine contents of tobacco, with reference to pipe-, cigar-, and cigarette-smoking; the food value of oysters and the risks in their breeding and supply; and the danger which lay in the employment of certain flannelettes. His application of science to the things of daily life became a habit—part of his mental make-up. This was notably the case in regard to food, and constantly found expression in our columns. A luncheon to him was so many calories, with perhaps too low a protein factor and a deficiency in fat-soluble A. Atoms, ions, and sols in his mind kept familiar company with food, drink, clothes, and the raw materials of industry.

We have had good friends, and good friends have regularly taken their places, but Vasey, the man of science, who could bring his academic and practical learning to bear on the commonest problems of life in relation to medicine in its broadest sense, has been irreplaceable.

ENVOI.

We have left undone things which we ought to have done, and some things which we have done have not fulfilled their objects. But we have spared no pains to maintain the status of medicine and to assist in the progress of medical science by the diffusion of its hopes, its tenets, and its results. For the recognition of these efforts we thank our readers.

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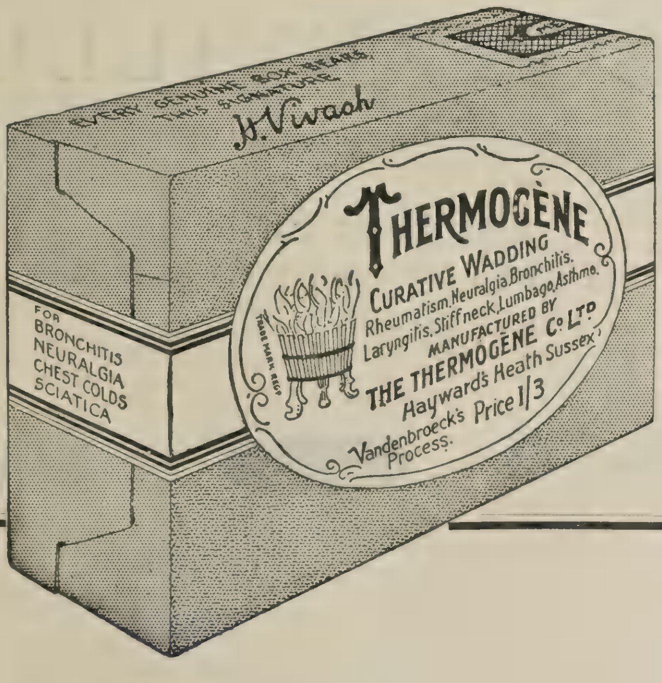

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Introductory Addresses

PROBLEM OF SUCCESS FOR MEDICAL WOMEN.

Delivered at the London School of Medicine for Women on Oct. 1st, 1923,

By Sir HUMPHRY ROLLESTON, K.C.B.,
PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

[Sir Humphry Rolleston began his address by referring to the rapid progress made by women in the medical profession since the London School of Medicine for Women was opened in 1874, and went on to examine the difficult question of the factors which make for professional success with women doctors:—]

Since the time of Darwin it has been recognised, though not without protest (Karl Pearson), that variability, both in body and mind, is more frequent in the male than in the female sex, so that genius, originality, and initiative, as well as idiocy and crime, are more frequent in men than in women, who tend to preserve a more equable level; men have a greater aptitude for abstract problems, women for concrete subjects. Now taking into account only the factor of the vastly greater number of men than of women in the medical profession, and remembering the relatively small percentage of men of outstanding ability that it has produced, it is surely not surprising that women doctors have so far not numbered among them any to rival Lister, R. Koch, Osler, and Horsley. Further, the number of women who give up the pursuit of medicine, before or after qualifying, is probably relatively much greater than in the case of men, mainly because marriage seriously depletes the ranks of women doctors; further, it is widely held, though statistical proof of this would be difficult, that it is the ablest who thus fall by the way. It has been stated (L. Martindale) that 30 per cent. of all women doctors marry either before or after qualification, and, though what proportion of these retire from active practice is not known, it commonly must act as a handicap to women, whereas it is of necessity a stimulus to male practitioners. But to return to the sex-incidence of genius—that extreme natural variation—there is, as just pointed out, the additional factor of greater uniformity among the female sex to reduce the probability of the occurrence of phenomenal ability among them.

Sex Differentiation.

Study of the world's history has convinced Mathilde and Mathias Vaerting, whose remarkable book "The Dominant Sex: A Study in the Sociology of Sex Differentiation," has recently been translated into English, that the relationships of the sexes as regards dominance vary in a manner resembling the swing of a pendulum; in a few instances women have had the upper hand, as in ancient Egypt, Sparta, the Garos in India, and the Iroquois; in the vast majority of nations, of course, men have been predominant, and very exceptionally the rights of the sexes have been nearly equal, as in the State of Wyoming; during the phase of male predominance there has been a conscious or unconscious tendency to obliterate the evidence of former feminine dominance, or, expressed more generally and at the same time more forcibly by the Vaertings, "history is perennially falsified by the prepotent ideology of the dominant sex." In nations under feminine dominance the woman supported the family and went out to work while the man was the housekeeper and domestic drudge; such division of labour is not ascribed to biological or physiological differences, but depends on the dominance of sex; in fact, the women of a nation in which the female sex is dominant become from the attendant circumstances physically fitter than the men. The notion that inborn physiological differences between men and women determine the usual superiority of the male is argued to be due to confusion between cause and effect.

The force of tradition and the suggestion that man is the dominant partner is not easy to estimate accurately in regard to medicine; auto-suggestion may well be of some importance; but that a woman doctor would consciously abstain from research and striking out a new line because it is commonly regarded as peculiarly a man's sphere seems improbable. Nevertheless the tradition of maternal ancestors (feminine heredity) and its social influence on the early life of a generation that has witnessed the wide opening of careers to women cannot be neutralised at once, and its effects may persist for some time. That women as a class are inherently more law-abiding, more subject to what they regard as conventional, and more conservative might reasonably be interpreted as the outcome of long-continued subordination to men's ascendancy. More than a hundred years ago Sydney Smith laughed at the idea that there was any inborn difference of intellectual capacity between men and women, and argued that the conditions of education were entirely responsible for the existing differences. Further, in the report of the Board of Education's Consultative Committee on the Differentiation of the Curricula for Boys and Girls respectively in Secondary Schools (1923) the opinion is expressed that there is little difference in intellectual capacity between the two sexes, though there are noticeable divergencies in emotional response as indicated by the degree of interest evinced for various studies, and that on the whole the apparent differences revealed up to the present by psychological inquiry would not seem to justify any serious differentiation in the actual curriculum.

Effects of Tradition and Heredity.

It is obviously important and equally difficult to apportion accurately the influence of environment, tradition, and suggestion on the one hand, and hereditary and inborn tendencies on the other hand. The circumstances of women doctors and students of medicine, though infinitely better than sixty years ago when the struggle for any opportunities at all was in progress, are even now not so good as those of men; for example, the hospital facilities and appointments open to them are still restricted as compared with those of men. On the other hand, it must be remembered that some of the best work done by men has been accomplished in the most unpromising surroundings; and it has been truly said "genius does what it must, talent what it can."

Though much less than in the past, the sexes still lead different lives; girls are more prone than boys to follow an indoor and confined routine, and so to impair or retard a robust physical development; and thus sexual peculiarities are accentuated. The physiological disabilities arising out of sex must be taken into very serious account as a weighty factor in determining women's chances of a successful struggle in intellectual work and practice of the profession of medicine. In 50 per cent. or more of women the monthly rhythm is a distinct handicap, and its manifestations are prone to be aggravated by a sedentary life and other factors prejudicial to a vigorous state of health, factors often inseparable from the life of a hard-worked doctor in town or institutional practice. For the greater part of their active life a large number of women are liable to recurrent interruptions in their state of efficiency, and are thus at a grave disadvantage as compared with their male competitors; among men migraine, which might be regarded as comparable in its periodicity and effects, is relatively so rare that it rather tends to emphasise the reality of the women's burden.

[Sir Humphry Rolleston concluded this section of his address by supporting the view that women have in a more developed degree than men the power of arriving at the correct solution of problems *per saltum*, and went on to estimate the ability of women medical students by their examinational distinction:—]

It may be interesting to compare the percentage of qualifications among men and women entering the medical profession. Sir James Paget's well-known analysis in 1869 showed that of 1000 medical students at St. Bartholomew's Hospital, 776, or 77·6 per cent., actually qualified; of Sir Squire Sprigge's smaller series of 250 students in the early 'eighties from St. George's Hospital, 187, or 75 per cent., qualified. Miss L. M. Brooks, your warden, has kindly analysed for me the results of 700 students entering the London School of Medicine for Women between October, 1894, and July, 1914; of this number 593, or 84·7 per cent., completed the qualification for which they entered; this proportion is much the same as that (about 85 per cent.) arrived at by the General Medical Council in 1907, and that (87 per cent.) of the students entering St. Thomas's Hospital in the years 1890–99 (Edred Corner). As far, therefore, as these few figures go, women students have held their own. It is satisfactory to learn that the death-rate during pupillage, which in Sir James Paget's series was 4 per cent., was halved in Sprigge's and Corner's series, and was little more than 1 per cent. (8 in 700) among the students of this school.

Possible Danger of Early Success.

Though a high place in the class list provides a good start and is prima facie ground for anticipating success in after life, it is, of course, no guarantee for women students any more than it is for men. Although many prize-winners continue to be front-rankers, early success is not without its possible danger; it may breed conceit and slacken effort, so that the highly placed may become extinguished by their distinction. An early failure is sometimes a blessing, however much it may be disguised. Another consolation for those who fail to find favour with examiners is that some students develop late, and so at first do not compete on equal terms with their more brilliant rivals, though eventually they surpass them in the race of life. To the make-up of a capable medical practitioner professional knowledge is not the only property necessary; practical efficiency, presence of mind, wise discretion, sympathy, and a thorough understanding of human nature are other essentials. Academic success may be obtained by mental ability, industry, and a temperamental power of making the best of knowledge thus acquired. Book knowledge may therefore go further in the examination test than in the daily round of practical life.

Women are, on the average, better students than their brethren; they work harder and take more pains, being whole-mindedly concentrated on the subject in hand. So much so indeed that many of them find it difficult to throw off their work for a time, and therefore tend to get stale and mentally dyspeptic. The power of detachment, by which mental concentration can be transferred from one thought-tight compartment to another, is of infinite value.

Relaxations.

The importance of cultivating a hobby, distraction, or avocation to balance and correct the more urgent claims of professional studies is a commonplace, yet like many dictates of common sense it is often ignored. Literature, music, art, and athletics are not only part of a liberal and humane education, but invaluable as a means of refreshment and of re-creating energy for the business of life. Just as there are burly athletes who never study, so are there pale students who go to the other extreme and thereby endanger their future by undermining both their mental and their physical efficiency. As a class women students are more prone than their brothers to over-devotion and thus to narrow their intellectual outlook and their chest development; to them, therefore, it is not so necessary to insist on the obvious need for industry, what Sir William Osler in his charming "Æquanimitas" called "the Master-word in Medicine," as to remind them that the best student combines mental and physical prowess, and thus realises the ideal of the *mens sana in corpore sano*. It has not uncommonly been urged in introductory addresses such as this that hard work alone seldom leads to a breakdown and that worry or some extraneous factor is the real cause; this is a rather over-stated, though no doubt admirably meant, exhortation, and is perhaps more applicable to those whose life's work is free from the menace of the examination bogey than to the students, especially women, whose mental vision is too often focused anxiously in that direction. It may be partially true when hard work can be secured from worry, but even then the interference with physical health must be taken into consideration. Much, therefore, turns on how the work is done, wisely or otherwise, and on the physical and mental make-up, so to speak, of the individual. Women students especially should remember that there are occasions when the willing spirit should be mindful of the weakness of the flesh, and that as a class they are more liable to mental breakdown from overwork. There are disadvantages in reading too much.

Rarity of True Genius.

[The lecturer, having reminded the audience of the differences between bookish learning and practical wisdom continued:—]

In the opinion of experienced teachers, such as Prof. W. D. Halliburton, while the average female student is on the whole superior to the average male student, possibly because the women who take up science are usually keener and feel a call to do so, the best women students are not so able as the best men students. This estimate indeed is on the same lines as the generally accepted view that true genius is even rarer in women than in men. Now whether this is due to inherent sex peculiarities or is the result of long-continued dominance of the male sex or to both these factors is an academic though interesting question.

It has been stated that each individual contains the potential elements of both sexes, one being of course dominant, though varying in individuals, probably in correspondence with the influence of the hormones from the endocrine glands, especially the gonads. According to Otto Weiniger and W. L. George, "there are no men, there are no women, but only sexual majorities." Although this view may not now be accepted and the endocrine glands are now considered to influence emotional rather than intellectual activities, there are most remarkable individual differences among members of the same sex, and everyone has known feminine men and virile women. As all kinds make a world, provision must be made for all, and it is among the masculine-minded women that variability tending to the production of genius or of special ability may be anticipated. Perhaps too much stress has been laid on the small number of women doctors who have made epoch-making advances and on the view (correct as it may be) that as a rule women students are less original in mind, less inclined to initiate new lines of thought, and are more successful as conscientious followers than as independent leaders in research. There have been exceptions in the past to any such rule, there are more in the present, and in the future there can be little doubt that women workers will take an increasingly larger part in research, whether independently or under the inspiration of a great teacher. The establishment at the Royal Free Hospital for a whole-time professor (Dr. Louise McIlroy) of obstetrics and gynæcology with a clinical unit is a notable step in advance and offers opportunities for realisation of this belief.

The Measures of Success.

But after all, success in our profession is not solely measured by ability for research and the discovery of the truth, any more than by the accident of popular approval that brings with it wealth and a prominent place in the limelight. There is the satisfaction of honest work quietly carried out with the knowledge that duty, hard and unremunerative though it may be, has been done. The truest success in the art of healing does not, as it does in pure science, depend solely on intellectual pre-eminence; there are the properties of the heart as well as those of the brain, perhaps best expressed in the familiar text—

> "Though I have the gift of prophecy (prognosis), and understand all mysteries (diagnosis), and all knowledge; and though I have all faith, so that I could remove mountains (confidence and operative skill), and have not charity, I am nothing" (I. Corinth., xiii., 2).

In the keen pursuit of scientific diagnosis, which is a purely intellectual process without room for the emotions or sympathy, there is a risk that the patient may be regarded and treated as a machine out of order, and thus the plight and feelings of a suffering fellow creature may be forgotten. A doctor should add to the abilities of an engineer and chemical expert of the human body some of the attributes of the broad-minded Churchman. Sympathy demands imagination, and both of these specially feminine properties should be preserved as valuable assets in our profession, and not transformed into callousness by contact with the naked and often repulsive aspects of a doctor's life. Imagination should supply an insight into the mind of the patient and an understanding of the fears and anxieties of those who come to be cured. Without this conception of the patient's point of view the student may think only of the diagnostic problem and forget the human aspects. The influence of cheerfulness and of reasonable optimism on the sick should be ever borne in mind; yet this may easily be forgotten in the presence of dour reserve even amounting to bad manners, really due to the patient's worries and self-consciousness. With a cheerful manner should be combined a degree of concentration sufficient to convince the patient that his condition is receiving serious attention; it is hardly necessary to carry this so far as to give the impression to every patient that he is the only person who counts in this world. Tact and self-oblivion, essentially feminine properties, are of great value in medical practice, and should therefore be preserved by medical women and not, as perhaps is sometimes the case, repressed or discarded by the more vigorously minded. As scope for the emotions and human interest are important factors in rendering work congenial to women, this would appear to be an additional reason why most women are more suited for practice than for pure laboratory research.

Though this address is headed "The Problem of Success for Medical Women," at this comparatively early stage of women's activity in the medical profession it is not wise, and indeed is hardly possible to say the last word on this subject. That medical women have succeeded in the face of great difficulties is shown by recent history, and now that circumstances have been so vastly improved by their efforts the road has been opened to their successors. The way, no doubt, is long and beset by difficulties; patience, perseverance, and wisdom are necessary, but there is encouraging evidence that by these means women may look forward to a just meed of success.

THE PROPER UTILISATION OF THE SENSES.

Delivered at the Opening of the Session of King's College Hospital Medical School on Oct. 3rd, 1923.

By H. J. WARING, M.S. Lond., F.R.C.S. Eng.,
VICE-CHANCELLOR OF THE UNIVERSITY OF LONDON; VICE-PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

I intend to say a few words to you to-day on the way in which we, as students of medicine, form conclusions or come to decisions. I say purposely *as students* for all of us in one way or another are students of our great science and art, and it has occurred to me that it may be useful to you who are entering upon or are already entered upon your professional studies if I offer some remarks on the way in which, as it seems to me, we arrive at our conclusions in the practice of medicine and how we can best ensure that those conclusions shall be the correct ones.

Now, if our conclusions are to be sound, if they are to afford a satisfactory basis for action and treatment, it is obvious that they must in their turn be based upon accurate data. And so I must first of all lay stress upon the importance, the supreme importance, of the *proper*, that is the *intelligent*, use of the senses—of sight, of hearing, of the muscular sense, touch and smell and taste—in the practice of medicine. This is, of course, no new theme; it is, indeed, a very trite one, and some of you may very likely be disposed to say to yourselves, "All this we have heard before." That may be so. But sound doctrine does not lose its validity because it is not fresh and because it has often been taught before; we must not, I think, assume that it has been acted upon—there are some excellent rules about public health enunciated by Moses which I am afraid are not observed by a good many communities in Europe.

The Understanding Eye.

Now what do I mean by the *intelligent* use of the senses? I mean using with understanding those wonderful natural instruments with which we are provided, and which it is the especial business of a medical education to call into action, to stimulate, to train, and to educate. Take for instance *sight*, in many ways the most important of these senses. You will doubtless have learned that considered merely as an optical instrument the human eye is far from perfect, and any oculist could suggest divers ways in which it could be improved. The important thing, however, is not the mere instrument, it is the mind which is using it. The doctor's eye especially must be a "*seeing eye*," an eye which has not only the power to identify, but an eye which has been trained to look for things. It sees *actively*, it is *aware* of things. The camera and the microscope, though they are optically more efficient instruments, are, properly considered, only extensions of the eye, and the most detailed micro-photograph or skiagram will have no meaning, that is no significance, to an eye which has not been trained not only to identify—that is relatively easy—but to seek for objects, appearances, and signs with an understanding eye.

So, too, with the other organs of sense—the sense of hearing or of touch. The stethoscope reveals nothing except to a trained and discerning ear, and the finger of the physician and surgeon is itself an instrument so delicate and sensitive that I could not, if I wanted to, over-emphasise its service to him, and through him to the ascertainment of signs and symptoms and the causes of sickness and injury. Every physician and every surgeon can tell you of mistakes—some serious, some merely ludicrous—which have been made by young practitioners (and not always by the *young*) by failure to recognise or identify an outward and visible sign which was plain and unmistakable for one who would simply make use of his senses. Thus, how many of us at one time or other have mistaken a glass eye for a real one? On more than one occasion I have seen a student make a careful examination of an artificial eye and write a careful report thereon as to its optical capacities, without discovering that it was not real. Also students in the earlier stages of their career frequently mistake a normal physiological condition for a diseased one.

Some of you are now just entering upon your clinical work. You are looking forward, I have no doubt, to getting into the wards, and you are anxious, and rightly anxious, to get to grips with the more practical side of your work. But glad as you doubtless are to have finished, for the time, with your preliminary scientific studies, you would be making a mistake, and a serious mistake, if you regarded these merely as a regrettable necessity in your career—as something in which you pass examinations—and still more so if you were to cast them behind you as things of the past entirely. You have, in fact, already been learning the great lesson of observation ; your senses have been trained and educated to some extent. In your study of biology you have been searching for and *observing* the manifestations of life in their simplest form, and searching for the explanation of the processes of life. In your anatomy and physiology you have been *observing* and noting the structure and functions, the framework and the organs, the mechanism, physics, and chemistry of the human body, and all this important work, this group of sciences all converging upon the human body, is not only the foundation of your clinical studies, it is the preparation for the art of observation and reasoning which should accompany those studies.

The Example of Lister.

The importance of all this is exemplified in the life and teaching of Lister, who is very rightly regarded as the greatest ornament of your school and hospital, as he is one of the chiefest glories of English surgery. Why was Lister such a great force in the history of surgery ? And what was it that enabled him to revolutionise surgical practice throughout the world ? There are a good many answers to these questions, but if you read his life you cannot fail to be struck again and again by his constant habit of patient *observation*. There was nothing which he stressed more in his teaching than the value of the " faithful eyes." And he practised what he preached. He *saw* things which others either did not see, or if they saw they did not regard as significant. And note this : Lister was well grounded in the preliminary sciences, and he maintained his interest in them and made them his concern right through his life, in spite of the fact that he was a busy practising surgeon, and that, as I can assure you, the leisure of practising surgeons is extremely limited.

Notice this also, that it was Lister's interest in and knowledge of the basal sciences which enabled him to formulate his great principle of antiseptics. I speak of the principle, for the particular method is a matter of secondary importance. There is not at first blush a necessary or an obvious connexion between phenomena of yeast ferments and the employment of agents to prevent the admission of pathogenic organisms to a wound, but the connexion between these two is as well established as anything in the history of medicine. I feel sure, too, that the study of organic chemistry and biochemistry, physics and biophysics, is in the future destined to be very fruitful for medicine, and I hope it may fall to some of you to bear a part in the advancement of medical knowledge in this way.

But you may say, and quite properly, that we cannot all be Listers. Most of you will, no doubt, undertake general practice, and that is a high and an honourable calling. It is upon the general practitioner that in the main falls the duty of ministering to the needs of the mass of the population, and a good medical school will always aim at training and equipping good general practitioners. It would be wrong to suggest that the general practitioner does not make *his* contributions to the advancement of medicine ; that, as we know, is emphatically not the case, and many improvements in method and technique are due to busy practitioners working very often in isolation.

On the whole, however, the general practitioner is concerned less with the prosecution of research and the advancement of knowledge than with the early diagnosis and treatment of the varied ailments and diseases. Is there not, in this beneficent work, as great a need as in any branch of practice for the cultivation of continuous, accurate, and intelligent observation ? Most emphatically, yes ! Indeed, the conditions of general practice necessitate, I think, even greater use—accurate, intelligent use—of the organs of sense than in many other cases. The general practitioner must not only on occasion make quick and important decisions, based, of course, on the best readily available data, but they have also to be made under conditions of difficulty. He may be called out of bed in the night to undertake, unassisted, an emergency operation ; he may have to decide in a bad light, in circumstances of difficulty, the nature of a possibly infectious ailment ; or, perhaps, after a serious accident to make up his mind what should be done and how he is to set about doing it. The resources of a great hospital are not available to him ; he cannot verify his conclusions immediately by the X rays or by sending a smear or other material to the pathological department ; he has to act without consultation, without being able to avail himself of modern physical and chemical methods of diagnosis, and, as I have said, he must often act quickly. In such a case is it not obvious that the intelligent—the understanding—use of eye, and hearing, and touch and smell is of fundamental importance ?

Conflicting Evidence.

Now let us suppose that these faithful servants of ours, the senses, have done their work. They have obeyed your behest, and they have furnished you with their reports on the results of what can be seen and heard and felt and so on. In a great many cases their testimony will be so unanimous and corroborative that the task of forming a conclusion will be a comparatively easy one. Eye and ear and finger all tell the same story in the most significant way. Sometimes, indeed, the eye alone will suffice, and many a physician and surgeon has formed a provisional conclusion as soon as a patient has walked across the room.

The difficulties begin to arise when all the witnesses do not say the same thing—when they appear to contradict each other or when their reports do not agree in emphasis or assurance, even after further trial. They have done their task to the best of their ability—and that best may be an exceedingly helpful one—but the work of deciding is now matter for the mind ; that has now to balance, to sift, and reject. Observe that even the negative evidence of the senses can, *if it be accurate*, be of great use. By its use certain possibilities can be ruled out and the field of alternatives is by that much narrowed. The elementary rules of logic will hold good for some way—a thing cannot, for instance, both be and not be. But logic, you will find, certainly the logic of the schools, will not help you greatly. Few minds work by syllogism ; and I am fairly sure that very few medical minds do so. As logic and life are very different that is perhaps no bad thing.

After you have narrowed your field very drastically there may still remain several alternatives which are fundamentally opposed although superficially, and in some respects, the opposition is not obvious. How are you to proceed ? In a contest of evidence which witness will you believe ? Well, it may be that one witness will answer so clearly, so definitely, that you will be safe in placing reliance upon its testimony. It may be that on further inquiry other evidence may be forthcoming which will corroborate that testimony. But not infrequently you will find yourselves taking up with an hypothesis—you say to yourselves, " Let us suppose so-and-so " or " let us assume, provisionally, such and such." In that way you formulate an hypothesis which will account for some of the data. You do so and then test it with reference to the remainder. If it fails completely to satisfy these, then you know that it is inadequate and find another. That in its turn may not meet the case, and you may be driven to adopt and reject several until at last one is met with which will satisfy all the data. If it is the only hypothesis that does so you are then in a position to form your conclusion—you have, in fact, already done so—but it may happen that more than one hypothesis will occur to you, and that two may, though with differing degrees of certainty, harmonise and reconcile apparently conflicting data.

The mind is then working (and with experience is working with extreme rapidity) in selecting, rejecting, harmonising, and reconciling in order to find the solution to the problem which is to form the basis of action. This process, so subtle and delicate, is extremely difficult to define. I can picture it (but it is not a very satisfactory picture) as a kind of supersensitive organism shooting out innumerable fine tendrils which grope about as it were in the dark, searching for something tangible, and rejecting continuously until it is satisfied. And it is not always a conscious process. Often, indeed, it appears that a subconscious, or an intuitive agency, has been at work, and we make what appears to be a happy guess. Do not misunderstand me or do not be astonished at such a homely and unscientific word. I say "guess" because we cannot without difficulty retrace the path in our mental process which we have taken so rapidly and which has brought us out successfully. We seem to have blundered as it were upon it.

GUESSING.

It is not, of course, a guess any more than Archimedes "guessed" the answer to his problem and shouted "Eureka" in the bath, for the mind has been at work on it. And it is disciplined and trained mind, though it has, perhaps, seemed to play—at any rate it has not in many cases appeared to approach the question directly. Perhaps, some day, our psychologists may throw some more light upon the process—in the meantime I shall say "guess."

But obviously these delicate mental processes, whatever be the name you care to give to them, depend for their validity upon getting your facts right in the first instance. A small and seemingly insignificant difference in your initial data may prove of enormous consequence when it has turned the scale in forming the conclusion With practice and experience you will, of course, become apt to suspect that this or that detail has been overlooked—you will, so to speak, "look again" to see whether the facts have been correctly noted, and see if they do not accord with a probable hypothesis. That, however, will only come with experience, and with experience there will have come—there should have come—the habit of close observation, careful examination, and avoiding those mistakes on which so much depends.

Observe, make intelligent use of all your senses, and again observe! That is, I think, the first great lesson for us—and the rest shall be added unto us.

"PRACTICE."

Delivered at St. George's Hospital Medical School on Oct. 1st, 1923,

BY E. B. TURNER, F.R.C.S. ENG.,

DIRECT REPRESENTATIVE ON THE GENERAL MEDICAL COUNCIL.

GENTLEMEN,—A student of St. George's, I stand here to-day to greet those of you who have experience of this school on your return at the commencement of another academical year, and to welcome those of you who are making their first appearance to-day at the "Corner." I also wish to congratulate all of you both on your choice of a profession, and of the hospital and school in which you will complete your preparation for your future work.

Our profession, proved in peace, found itself in war. From the days before Galen and Hippocrates altruistic, self-sacrificing, truth-seeking, it has worked steadfastly towards the light. Whenever possible, discarding mere empiricism, it has based its advances on the sure foundation of scientific fact, and has attained its present position through the unselfish efforts of numberless workers and observers ever striving to raise the sister sciences of medicine and surgery above the fogs of mysticism into the clearer atmosphere of knowledge and common sense.

Peace and War.

Whenever the acid test of war has been applied the healers have risen to the occasion. Whether Machaon, *ἰητρὸς ἀνὴρ πολλῶν ἀντάξιος ἄλλων*, a surgeon worth a multitude, Ambrose Paré groping towards the truth, or one who served in the Great War, the navy and army surgeon, whether attempting to prevent disease, formerly more fatal than the bullet, to rescue the wounded, or tend their hurts, has ever placed duty far in front of self. Two men only have ever won bars to the Victoria Cross—Martin Leake and Chavasse, *ἀνδρές ἰητροὶ*, both added honour to our profession. They did not see red. Theirs was that cold, clear-cut, "two o'clock in the morning" courage—that courage shown by many another surgeon who, when disaster was imminent, solicitous only for his wounded, with them awaited certain death or capture.

> "Atqui sciebat quae sibi barbaras
> Tortor pararet."

Such is the history in peace and in war of the profession into which you are entering.

This hospital and school in which you will continue your education, and form your medical character has behind it great names, great traditions, and a continuing reputation for good work. It is certain that you will find here greater and more frequent opportunities than you would in some of the larger and more crowded schools for *doing* things yourselves rather than merely watching others do them. For my own part I wish that every one of you had entered and worked here "ab Ossibus usque ad Bacteria," from "the Bones to the Bugs," so that you might be imbued with the esprit de corps and carry the hall-mark of St. George's from "the eggs to the apples" of your professional training, but that at present is not possible.

I have undertaken to-day to speak to you on the subject of "Practice"—the practice of your profession in whatsoever branch of it you may elect to work. Before doing so I think it is very right and proper that I should say something as to your preparation for that work both here and in the outside world.

Factors that Make for Success.

To do well in practice a very sound knowledge of your profession, though by far the most important, is by no means the only factor which makes for success. Personality, presence, tact, sympathy, understanding, and a profound knowledge of human nature are indispensable, and you cannot commence to cultivate these essentials too early. If you, therefore, wish to do well you must become a "man of parts" in every sense of the word. For this reason I urge every one of you to have some interests outside your actual profession—cultivate some hobby. I do not much care what it may be so long as it brings you into contact with your fellow men well away from the bedside, and, if it be possible, takes you into the open air. For some of you this may not be advisable, and your inclinations may lead you to vary your work by taking up some other line of scientific research—well and good—t'will serve. But those of you to whom sport in any form is a real recreation and allurement "grapple it to your hearts with hooks of steel"—so long as you live you will never regret it. Do not confine your efforts to one branch of sport only, you will then not only make a much larger collection of lifelong friends, but a youth thus well spent will fit you both physically and mentally to cope with the hard, exacting work required from you in after life. Play the strenuous games while working here so long as you may be able. Afterwards harass the ball in a milder fashion, slay the grouse, or beguile the fish whenever you get a chance. A sporting reputation will often be of service to you in quite unexpected ways. Early in the war I had to lecture on venereal disease to some thousands of pitmen and other workers at Newcastle-on-Tyne. The chairman of the meeting was evidently rather doubtful how the men would take that which was coming to them. So he proceeded to disinter my long-buried athletic past, and having brought it to light heaved a sigh of relief, and said "I'll just tell my lads that—They'll think a damned deal more of thee as a football player than they will as a doctor."

Do not, however, think that I am putting your amusements and hobbies in front or in place of the real and serious preparation for your future career.

A wise student can combine the two. At the end of 1876 St. George's held the football cup, the athletic shield, and the highest average of passes in all the examinations; and the men who gained the school prizes and passed the examinations were those who played in the fifteen and won the races. "Verbum sapienti satis est."

Twin Rocks of Practice.

You who are now entering this clinical school have surmounted the obstacles of your earlier examinations. I expect some of the troublesome details in the subsidiary sciences will rapidly fade from your memories. Be that as it may, there are two subjects which, if you wish to do really well, you must practically make a part of yourselves—anatomy and physiology. These are the twin rocks on which the whole edifice of your work both here and in practice afterwards is founded and built. What is surgery, even surgery *in excelsis*, but anatomy—anatomy and common sense, while medicine in addition takes unto herself rather more physiology. The General Medical Council, when revising the curriculum last year, was so impressed with the necessity of a continuing knowledge of these two subjects that it was enacted that active teaching of both in relation to medicine and surgery shall be continued during the whole course of professional education, and that the knowledge of students therein shall be thoroughly tested in the final examinations, including the anatomy of the living body and not only that of the subject. Therefore, while working in the wards and school carefully conserve and add to your knowledge of these fundamental sciences.

Whenever you can get a chance *do* things for yourself. Do not be satisfied with watching others demonstrate how they should be done. Under the new regulations for examinations more value will be given for practical work. A brilliant theoretical paper will not, in future, outweigh bad clinical or practical work, as has sometimes been the case in the past, so that no man will take his degree unless he be a capable and practical physician and surgeon. Supplement your reading by the work of your hands on every possible occasion. I most strongly advise every one of you to set his face steadily towards "house" office, either here or, if that be not possible, in some other institution. You will be infinitely better qualified for practice if you have worked as house physician and house surgeon with the help and under the supervision of the staff of some hospital. Not only will the experience gained from your cases and the responsibilities you will have to face be invaluable, but if, as I hope is still the custom here, you teach in the wards as you go round, that teaching will increase your own knowledge and accuracy fourfold. You are working in the "fierce light that beats upon a throne," and should you make a mistake it will be all over the school the next day.

Choice of Career on Qualification.

When you have taken your degree and become qualified, the culminating point of the first stage of your career as a student of medicine—students of medicine you are, and students you will remain until you cease to function—you will naturally give thought to your future, and will seriously consider in which branch of your profession you can best employ your talents and abilities. Those of you who have taken honours and won scholarships will naturally turn towards the higher examinations for the M.D. or the Fellowship, with a view to appointment on the staff of a hospital. If you are well qualified and can give the time and work necessary to obtain and succeed in such a post you can hardly do better. Some of you may intend to specialise in some branch of medicine or surgery. If so, be sure that you know your profession from alpha to omega before you confine yourself to study one department only. To be a really competent specialist a man should have a comprehensive knowledge both of medicine and surgery, and, if possible, should have practised some years before starting on his own particular line of work. Build the house first—fair and strong—add the coping stone and pinnacles of special investigation and research to the completed building. Brudenell Carter was in practice for some years, and served through the Crimean war before he became ophthalmic surgeon to this hospital.

You must remember that the human body cannot be bulk-headed off into various water-tight compartments, only one of which can be torpedoed at a time. The lay public does imagine this. I remember that once when I suggested a surgeon for an operation for carcinoma of the breast, I was met by the friends of the patient with the objection, "Oh, but he is only an abdominal surgeon." And occasionally you will come across even worse instances. Some years ago I was asked to see an individual, and after some little time I discovered that she was consulting, each quite independently of the other, one specialist for her brain and nervous system, a second for her eyes, a third for her skin, a fourth for her heart, a fifth for her liver and digestion, and a sixth (of course) for her uterus, while I, the seventh, poor wretch, was expected to "knit up the ravelled sleeve" and blend into one harmonious whole all these six varied and divergent lines of treatment! I declined the hopeless task. Remember, and never forget, that if you believe, and have exceedingly good reason for believing, that you have forgotten more about the little toe than anyone else ever knew, still that little toe has four intimate and closely connected companions on the same foot, and that a cyclonic disturbance originating in the biggest may even reverberate in the sacred precincts of the smallest. I have in my mind the instance of a friend of mine who, some thirty years ago, told me that one well-known specialist "was burning ulcers off his throat," while another, equally notorious, was "running his gout off through his kidneys with iodine," he having a cavity at either apex.

We cannot get on without specialists. They are invaluable. Some portions of our economy should practically be sacred to them. But when, as has frequently happened, I have been asked what I know of some eminent gentleman—to the public all specialists are eminent—who is supposed to be a specialist for some organ or disease which is so intimately an integral part of medicine and surgery as a whole that every practitioner must have a complete and exhaustive knowledge of it if he is to do any effective work whatever, then it gives me pause to think, and I wonder at the why and the wherefore.

The Services.

Some of you may decide to serve His Majesty and take a commission in the Navy, Army, Air Force, or Indian Medical Service. I am not here to discuss the advantages or disadvantages of each or any of these different Services. St. George's men have done exceedingly well in all of them, and you will carry on the tradition. The Public Health Medical Service, and appointments under various Government departments will attract a certain proportion of you. The degree of D.P.H. is necessary to qualify for these offices. The new regulations, which will shortly come into force, will raise this qualification to the status of an honours degree rather than a mere appendage of letters, and will distinguish those men who intend to devote their life to that which I prefer to call "administrative" rather than "preventive" medicine. During the last few years many attempts have been made to lay down accurately a dividing line between "clinical" and "preventive" medicine—how far the medical officer of health should go in the treatment of illness, and what should be the duties and the attitude of the clinical practitioner to the prevention of disease. For my own part, I have come to the conclusion that whenever I have warned little Jimmy that green apples in the wrong place are a source of acute discomfort, advised that they should be kept from him, and, if required, administered the harmless necessary castor oil, I was in actual fact combining clinical with preventive medicine, and that it was impossible to separate the two. Therefore, I consider that the terms "clinical" and "administrative" best define the scope of the work of the public health and practising branches of the profession.

Public Health.

In these progressive times there is a magnificent future for the medical officer of health. "Prevention is better than cure," and though he will frequently be expected to prevent the unpreventable, and remove the irremovable his opportunities to improve the physical condition of the people will be abundant, and his influence for good on the health of the community enormous. In all circumstances, and on every possible occasion, he should strive to work hand and glove with the practitioners in his district—his work then will be far easier of accomplishment and more satisfactory in achievement than if a state of armed neutrality or open warfare existed between him and them. One drawback, however, there is to service either under the State or any municipal body. To parody the Victorian poet—

> "Red tape is too much with us,
> Signing and certifying we lay waste our powers."

Minutes and reports are doubtless necessary to the supervising departments, but, writing myself down an ass, I often wonder if equal efficiency could not be secured with half the expenditure of ink, paper, and valuable time, which last, on the part of the doctor, might be so much better employed.

General Practice.

The greater number of you will go out from here and start work as general practitioners, or, in other words, you will take up your positions in the first and front line of defence against the continuous attacks of disease and death. In London and the great industrial centres you will be the first to see and appreciate the beginnings, and the earliest symptoms of mischief which, in many cases may be but of little moment, but in others of the gravest importance. In the sparsely populated rural districts you will be even more responsible. It is hardly possible to overstate the importance of such work, be it undertaken in country or town. In either case your motto must ever be "Principiis obsta," and the early exercise of your intelligence and acumen will save many a life, and put a term to years of unnecessary invalidism. However much you may be tempted never palliate symptoms only. Get right down, discover the cause of the trouble, and if possible remove it. You will have the advantage of seeing your cases when it is possible to benefit them. Your supports, the heavy guns, the consultant and the specialist, often have no chance of doing much good, as they may arrive on the scene too late. Therefore, during your preparation for future practice cultivate without ceasing the ability to make an early and accurate diagnosis, coupled with a sound prognosis, in every case you may see, however commonplace and trivial at the first glance it may appear. You can then take whatever action may be necessary, and when required call up your reserves and send out a "S.O.S." in time.

Years ago a St. George's man, a man of experience and knowledge of the world, said to me: "To a man who knows his work well two things are difficult in practice. The first to get into a house; the second, to get out of it." You will find this very true, and though as you grow in experience and status the first may be easier, the second will become increasingly difficult. You are asked to visit a sick person. You will soon find that on many occasions a very urgent summons is dictated by discomfort rather than by danger, while the quiet little note or message, "If you are in this part of the world come and see me some day—I am not feeling very well," may have behind it a grumbling appendix, the little malignant lump calling out for immediate attention, or the beginnings of some definite and serious disorder. Very early in the course of your work you may—you probably will—be confronted with a situation such as you have never had to face during all the years of your training. You visit a person whom you may never have seen before. Apparently there is very little wrong, but after examination you find such unsuspected conditions of disease—hepatic carcinoma, for instance—that a fatal termination is only a matter of a short time. In such circumstances what are you to do? What are you to say? The task is indeed difficult. To combine consideration and mercy for your patient with justice to his relations and yourself may well call for the exercise of the greatest tact and the most profound sympathy.

Cases not Met With in Hospital.

Let me warn you that you will not see in private practice the same sort of cases which you meet with in hospital. By this I do not mean that pneumonia in a private house differs from pneumonia in a hospital ward. The illness, quâ illness, and pathological change, are the same. The sufferers may differ, but that is another story. In a great hospital you have gathered together persons afflicted with severe and pronounced disease, the victims of serious accidents, and cases which, from their nature and environment, are beyond the possibility of proper treatment by the outside practitioner. Therefore you will not see so many grave cases wherever your work may lie. In industrial districts they are more frequent, as the British workman is slow to seek advice unless his ailment is painful or keeps him from work. He calls for aid when his condition approximates to that of the hospital patient. In mining areas you will have to deal frequently with many serious accidents. But if your lot should be to look after the well fed, well clothed, well housed sections of the community, you will be surprised at the small proportion of cases of really serious illness you will be called on to attend. I should astonish you if I were to tell you the number of cases of tuberculosis of the lung which have been under my care during the last 40 years. Since I was house physician here I have only seen three cases of enteric fever and one of glaucoma. Being familiar with all the grave manifestations of disease which you meet with in the wards you are able to go with an exceeding confidence into a house, in the sure and certain faith that whatever you may there find cannot be worse than that which you have habitually seen treated here. Again I repeat that "house" office is invaluable. Above all things, never forget to carry with you into your private practice that habit, the most important of any you may acquire in hospital—the habit of always examining and noting the condition of every organ in every case. You will find that a very large proportion of the mistakes which other people make are not due to any lack of knowledge or skill, but simply and solely to the fact that one or more important organs have not been carefully passed under review.

The work in hospital is done with the aid of every possible appliance—mechanical, chemical, optical, and electrical. Above all things never become slaves to your instruments. Cultivate at all costs that which, wanting a better term, I will call your clinical instinct. Make your diagnosis with your brains, your eyes, your fingers, and your ears, and then bring in your machinery to confirm or disprove your findings. Of late years I have noticed that many men are very chary of expressing an opinion, even upon a fairly obvious case, until they have the way made plain before them by laboratory tests and instrumental assistance. To use the invaluable methods of modern day scientific research in this fashion is to degrade them to the function of crutches, the constant use of which will enfeeble your intellectual muscles, and doom your independent perceptions to atrophy. Let them rather take the place of a walking stick, which will support your steps in rough places without paralysing your limbs. Times without number you will find the eye, the finger, and the stethoscope, used with a trained clinical intelligence, beat the test tube, the X ray, and the swab. Acting on the knowledge thus obtained, you frequently can save much valuable time to the great benefit of your patient. Use to the very fullest extent, but do not abuse, the assistance given to you by science.

Bedside Qualities.

If when you visit a sick person you are fit and well and, if I may use a slang expression, " full of beans," you may be quite certain that you will do that individual much more good than if you yourself were feeling depressed and below par. Some persons call this the " Gift of Healing." Patients are quick, indeed, to notice your manner and derive confidence and hope or the reverse from your demeanour. The convention that the habiliments and physiognomy of the physician should be as sombre as those of his occasional sequela, the undertaker, is now relegated to the limbo of superstitions outworn. If you are by nature " merry and bright," optimistic and high-spirited be thankful that you are so constituted, and exercise those powers to the fullest extent. If you be not, " Assume a cheerfulness though you have it not." A gentleman, who afterwards became a very distinguished surgeon to this hospital, was asked either by Brodie or Cæsar Hawkins (I forget which) to help him at an operation which in those days was always dangerous, and frequently fatal, and afterwards to stay in the house in case of any emergency. The patient died, but left special instructions that the fees due to this young surgeon should be paid three times over, because " he cheered me up."

While holding the most exalted ideals of personal and professional honour, so far as possible, be all things to all men. A hyperæsthetic enjoying bad health, and a breadwinner striving and fretting to get back to his work require very different management if you are to do your very best for both. To accomplish this requires tact—the saving grace of professional success. You will invariably find if you have brought the life, motion, and fresh air of the outer world into the confined atmosphere of the sick room, if you have discussed the iniquities of the Chancellor of the Exchequer, the latest scandal in the law courts, and the great performance of Yorkshire in the county championship, that you will leave the sufferer having done him more good than could be effected by the most cunningly compounded mixture of drugs in the British Pharmacopœia. At all times and in all seasons be very gentle with your patient. The heaviest handed and kindest hearted physician who ever went round the wards of this hospital, what time he severely pounded an extremely tender and sensitive abdomen, thusly exhorted the students standing around: "Never excruciate your patient—you can find out all you want without excruciating your patient—never excruciate a patient." The particular victim in this case had the gift of humour, and fully appreciated the precept and the example.

Take great pains to make an invalid as contented and comfortable as possible. Let the yoke of your restrictions be as easy, and the burden of your directions as light as the exigencies of the case will allow. The bed of sickness is not the bed of Procrustes. You must fit the bed to your patient—not your patient to the bed. The early success of homœopathy was, in the first instance, a revolt against too much calomel, colocynth and senna. The drastic drugs which are the salvation of a navvy are anathema to a thin-skinned, fair-haired, blue-eyed girl. Never prescribe for a person until you have shaken hands with him, and thus assured yourself of the texture of his skin and mucous membrane.

Acceptance of Responsibility.

Every general practitioner should be prepared to accept and face his own responsibilities. I do not mean by this that a fiery, untamed enthusiast should rush in to operate where an expert might well fear to tread, or that a man should be so obsessed by his own opinion of his own skill and importance as to be offended at the idea of a consultation, however difficult and obscure the case may be, but that he should treat and continue to treat until its conclusion, every illness which comes within his powers. I remember, they are all dead now, men of great repute with the public who never by any chance took any responsibility whatever if they could by any means avoid it. If they were confronted with an ordinary conjunctivitis or simple inflamed throat they at once invoked the aid of Sir Adenoid Tonsil, or Mr. Cataract Lens, and stood by while, under the ægis of these great names, nature recovered the patient. Such methods, though probably sound enough as regards these particular practitioners, do not conduce either to the good of the patient or the repute of the profession.

I have said, and even written in my haste, that the medical profession is divided into two classes, fools and physicians. The fool treats the illness, the physician the patient. This fact was impressed upon me years ago by a country unqualified assistant of great experience, in those days when unqualified assistants were lawful. I had treated many cases of pneumonia here, and confidently ordered for a strong full-blooded robust countryman the same treatment which I had seen succeed with the poor half-starved denizens of the Embankment and the parks who were admitted into hospital. The assistant remonstrated with me—of course I knew much better than he did and persisted in my line of treatment. The next day I had to confess that I was wrong and he right, and fortunately gave fresh directions in time to allow nature to save the patient. Be very friendly with Nature. She is ever striving to heal, and though in her efforts to do so she frequently destroys the individual, she means well. Do not rudely obstruct her path. Guide, lead, direct her.

Cures and Charlatans.

You can but seldom claim that you have " cured " a person. I am not now speaking of surgical cases. A gangrenous appendix successfully removed is a " cure," and there are even a few specifics in medicine. The first day I came into office as house physician I was taught this fact by the late Dr. Dickinson, and I have never forgotten the lesson. A girl wished to go out on Tuesday instead of the usual Wednesday. I took Dickinson to see her and he consented to her discharge, and directed me to sign her card. I did so putting as the result " cured." He saw what I had written, and at once said " Cured—who cured her? I didn't. Wilson (the outgoing house physician) would never have the impertinence to say he did. You can't, you only saw her for the first time to-day. Give me her card." Taking it he scratched out " cured," and in his own unmistakable handwriting inscribed " recovered." How true then! How true now! We aid " recovery," we but seldom " cure." You will, however, during the whole of your professional life hear of numberless fearful, wonderful and marvellous " cures " attributed to or accomplished by quacks, herbalists, bone-setters, " Ambubaiarum Collegia, Pharmacopolae hoc genus omne "—unqualified as a rule, though sometimes I am ashamed to say a charlatan disgraces a medical degree. You will *hear* of these " cures," you will *see* the other side of the picture. When an individual considers himself so far superior to the common herd that the orthodox is not good enough for him, and either by grace of nature or in some cases due to the skill and technical competence of the charlatan a good result is obtained, then everyone must hear of it. At all times and in all places he spreads the good tidings abroad, considering his happy fortune a tribute to his own intelligence. And he is ably seconded by the quack—especially if he be a personage in the public eye. Like Mr. Vincent Crummles we may indeed wonder " how these things get into the papers," but there they appear, and the whole matter flares up into that glare of publicity and blazon of advertisement which is the very life blood and breath of existence of the quack, but infamous conduct on the part of a member of a learned profession. Such are the cases of which you will *hear*—you will *see* the failures. No publicity here; no credit here to quack or quacked. It will be your task to attempt to repair the damaged joints, to palliate the sufferings, soothe the downward path, and sign the death certificates for those who come under your care "cured" of tuberculosis, or suffering from malignant disease allowed to increase until operation is neither advisable nor possible. But *few* hear of these disasters. They sink into oblivion—the oblivion of the sacred confidence between doctor and patient. Be very tolerant in all your dealings with such cases. Even in the present day, when we discuss insulin, appendicitis, and the sterilisation of the unfit at every dinner table before the women leave the room, the general public is very unknowing of things medical. "Populus vult decipi et decipiatur."

Cults, Religious and Other.

Very frequently you will come into contact with the votaries of those cults, religious, semi-religious, psychic, and imaginative, which profess to remove all the ills which flesh is heir to, by suggestion, and other means of influencing the nervous system. As with quackery so with these scarcely less harmful phantasies. You will hear only of their virtues. You will experience their vices. But in your haste do not write them all down as pure humbug. Though an abomination to your intellect and intelligence, still as the small boy said of the lie, you may sometimes find them a very present help in time of trouble—especially in those very difficult and unsatisfactory cases in which there is nothing whatever the matter with the patient. I mean by this when he has no actual organic lesion, or definite disease. Great success occasionally attends an attack along these lines in cases of purely functional disorder. Many years ago with the cordial approbation of the patient's father and the aid of the late Lord Lister, we successfully exorcised an entirely imaginary needle which in less than a week simply raced from the hip to the knee, causing, during its express journey, very acute discomfort to a hyperæsthetic young lady and her long-suffering friends and relations. We employed the methods of modern-day Christian Science, faith-healing, higher thought and pseudo-surgery. Our efforts were crowned with success. The needle troubled her no more.

Year by year you will see the rise and follow the decline and fall of many new diseases, of many loudly vaunted treatments, and will regret the premature discussion in public of matters of real scientific interest while yet in the experimental stage. It will be your lot to watch an endless procession of fetishes, each one surviving until pushed out of the limelight by its successor. In the morning they flourish like a green bay tree, in the evening they are cut down, dried up and withered.

"Truditur dies die
Novae que pergunt interire lunae."

There is a story of Sir William Gull, in his day a very great physician, and a consummate man of the world, which though old will bear repetition. A lady asked him whether she should try some much advocated new treatment. Gull replied "Certainly, my dear lady, most certainly—only mind you go while it cures."

"Time like an ever rolling stream,
Bears all these 'fads' away.
They fly forgotten as a dream
Dies at the opening day."

Relations with Colleagues.

In the course of your future work you are bound to come in contact with your fellow practitioners in many ways, and on many occasions. In our profession we are extremely individualistic, and it is certain that sometimes there will be friction between us, sometimes even leading to a quarrel. This is always unfortunate and generally unnecessary. If you make a rule to put yourself in the other man's place, and act as you think he should act towards you, fighting will be at a discount and ethical rules superfluous. Should you ever hear from a lay person that a doctor has given some extraordinary opinion or stated some impossible fact, don't you believe it. A dear old friend of mine once asked me if it were possible for a person to have some fearful, wonderful and impossible condition of disease. I answered "No." She replied "But her doctor told her she had." I said "No doctor could have told her such a thing. It is medically and surgically ludicrous." "But," she insisted, "So-and-So distinctly told me that was what her doctor said." My reply finished the discussion—"I am quite sure he did not—for I am So-and-So's doctor." The moral is obvious.

If a medical practitioner can find the time he should, as a citizen, interest himself and, if possible, take part in the public work of his town or district. As members of the public health committee of any municipality two or three unofficial doctors will often be the little leaven which leavens the lump, and their timely advice and influence may turn well-meaning, but ill-informed city fathers from some action which might gravely affect the health of the community.

Whether in the future you may become consultant, specialist, or general practitioner, always bear in mind that you are not dealing with inorganic material in a test-tube, or crucible, but with living human organisms each differing from every other, complete and perfect in itself.

"Of all God's workes which doe this worlde adorne,
  There is no one more faire and excellent
Than is man's body, both for powre and forme,
  Whiles it is kept in sober government:
But none than it more fowle and indecent,
  Distempered through misrule and passion bace,
It groes a monster, and incontinent
  Doth loose his dignity, and native grace;
Behold, who list, both one and other in this place."

These words are as true to-day as when Spenser wrote them nearly 400 years ago, so let your advice ever tend to this ideal, always urging and leading on those who entrust themselves to your care to attain that "Mens sana in corpore sano" the "summum bonum" of human existence and happiness.

The words which I have spoken to you to-day naturally apply chiefly to that form of practice of which alone I have experience, in which you work with your patient as individuals subject only to the common law of the land, and the ethics of your profession. But if in this present time any of you either by inclination, or of necessity, choose to enter into an engagement to treat persons by contract, then most of what I have said applies also to that form of practice. Should you make such a bargain you will carry it out both in the spirit and the letter. Whether or no you should undertake such work is for yourselves to decide.

Rewards and Friendships.

In whichever branch of your profession you may finally practise you will make lifelong friendships. You will acquire merit when you deserve blame, and blame when worthy of praise. These things all come into the day's work and a philosopher regards them with equanimity.

You have the world before you. You are the heirs of the ages. It is your privilege to begin where we leave off. The progress in every branch of our art which we have seen in our time is marvellous, and when you in your turn, "forty years on," look back, all the signs portend that you will have left even more behind you. Where we laboriously treated disease with drugs and diet the surgeon now, with a short circuit, gives sometimes in weeks the relief we failed to obtain in years. A short cut indeed! The gynæcologist has relegated to the scrap-heap of worn-out, disused machinery the instruments for craniotomy. With his mother MacDuff in his hundreds walks the streets, a living testimony to aseptic surgery.

"For those of us whose lot, sooner far than later, will issue from the urn—for those of us whose blunted lancet and perished stethoscope, like the arms and war-weary lute of Horace will soon adorn the wall, the time is at hand when we must humbly hope that, with that great poet, we may be able to say, 'Militavi non sine Gloriâ.'"[1]

You are now straining at the leash, crouched for the start, ready and eager to grasp the bâton which will send you on to run your allotted portion of the never-ending relay race against the teams of suffering and death; but when, in your turn, you hand on your trust to those who will follow after could we but burst the eternal exile of the boat and re-visiting the glimpses of the moon see the world, as you will leave it, healthier and therefore happier, rejoicing in your prowess, we should indeed be proud. We are confident that great will be your efforts, great your success, and speeding you on your way I salute you—"Ave atque Vale."

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[1] "Omnes eodem cogimur, omnium
Versatur urnâ serius ocius
Sors exitura et nos in æternum
Exsilium impositura Cymbœ."

"Et militavi non sine gloriâ,
Nunc arma defunctamque bello
Barbiton hic paries habebit."

TEAM-WORK IN NATURE.

Delivered on Oct. 2nd at the Opening of the Winter Session of the Middlesex Hospital.

By SOMERVILLE HASTINGS, M.S. Lond., F.R.C.S. Eng.,
SURGEON IN CHARGE OF THE EAR AND THROAT DEPARTMENT.

I am informed that the primary object of an introductory lecture is to congratulate those students who are just commencing their medical studies on the choice of a noble profession, and give them some useful advice on entering it. I shall omit the useful advice, but I would, nevertheless, like to address myself mainly to those students who are here for the first time.

The Struggle for Existence.

Darwin and Wallace have taught us that "the struggle for existence" and the "survival of the fittest" are the principal factors in organic evolution. But Darwin is quick to add, in his monumental work the "Origin of Species," that he uses the term "the struggle for existence" in a large and metaphorical sense, including dependence of one being on another. That Darwin appreciated the interdependence of one organism on another is shown by the well-known story of the cats and clover. The success of the red clover crop depends on the fertilisation of its flowers. Humble bees are the only insects that visit these flowers, and if humble bees are absent no seeds will be set. The chief enemies of humble bees are field mice, which destroy their comb and nests. "Probably two-thirds of them are destroyed all over England." Cats, which destroy mice, may therefore determine the success or otherwise of the clover crop. Darwin points out how in numberless animal societies the struggle between separate individuals for a means of existence disappears and is replaced by coöperation, and how that substitution results in the development of faculties which secure to those animals the best conditions for survival. It is, therefore, plain that those who would have us look upon Nature as a perpetual struggle among half-starved individuals thirsting for each other's blood are only showing us one-half of the picture.

It would be possible to cite innumerable examples—bees, ants, corals, the migration of birds—to show how much of team-work there is among creatures of the same sort. But plants and animals of different kinds also coöperate together to a much larger extent than was formerly supposed, and I might easily spend the rest of my time in reminding you of how plovers live with crocodiles, and sea-anemones with hermit-crabs, to the advantage of both; of how tiny sea-weeds live in the interior of marine worms and each gains by the association; of how the pollen of flowers is carried to other flowers by bees and other winged insects, who are rewarded for the work they do by the honey they collect.

Team-Work between Fungi and Other Organisms.

This afternoon, however, I want to confine my remarks to one of the lowliest groups of plants, the Fungi, and describe to you a little of the recent work that has been done in connexion with team-work between these and other plants and animals.

The Lichen.

And first of all, let us look at the Lichens. Every rock, fence, or tree which remains undisturbed for a year or two in the country gets covered over with lichens. I say in the country advisedly, because lichens will not tolerate the smoke of towns, and with one exception, "the London Lichen" (*Lecanora galactnia*), no lichens are to be found within many miles of the centre of London. It is said that the authorities of the Zoo, ignorant of this fact, covered the Mappin terraces with lichens from the country, and were not a little surprised that none of them would grow. To the medical student lichens are chiefly of interest because litmus is prepared from one of them. In the old days of medicine things were different. It was then believed that Providence had placed on plants "signatures" or resemblances—more or less vague—to parts of the human body. For instance, the skull lichen (*Parmelia saxatalis*), sometimes found growing on old bones lying in the open, was considered worth its weight in gold for the cure of epilepsy, and it was especially prized when taken from the skulls of those who had been hanged or executed for offences.

Lichens are important in Nature because they form an advance guard of organic life. They grow in deserts, and on mountains reach right up to the limit of perpetual snow. On bare rock flattened lichens first appear; more leafy varieties follow. Around these soil slowly collects, and thus the way is prepared for other plants.

A lichen is really a dual organism, being composed of a fungus united with a green plant (an alga). Now, all fungi, however much they differ, have this in common: that being devoid of green colouring matter (chlorophyll) they are unable to break up the carbonic acid gas of the air and obtain their carbon from it. Like ourselves, therefore, they have to obtain their food ready made from other plants or animals. If a lichen be cut into very thin slices and examined under a microscope, it will be seen to be composed of a network of fine colourless tubular cells (the fungus), enclosing within its meshes, especially near the surface, a number of bright green algal cells. These green cells are closely allied to similar cells to be found abundantly in moist situations—on tree trunks, walls, &c. The two constituents of a lichen can be grown apart under suitable conditions. In most cases the alga gets on fairly well, for it is used to living alone, but the fungus is less happy. If the two are re-united a lichen is once more formed.

Now, what is the exact relationship between the fungus and the alga of a lichen? Do they "love, honour, and cherish" one another, or is the fungus very much the senior partner of the firm? The view generally held is that both constituents derive direct benefit from the alliance; that the alga obtains water and mineral matters collected from the soil by the fungus in exchange for carbon products extracted from the air by the aid of light. Recently two Russian botanists, Elenkin and Danilov, have revived the old theory that the fungus is parasitic on the algal cell. They state that fine branches of the fungus pierce the algal cells and, forming a delicate network within, rob them of their cell-contents. A few years ago Robert Paulson and I spent much time in cutting and staining sections of different sorts of lichens. In this work we found the method of staining introduced by Victor Bonney especially valuable. We were able to show for the first time that the algal cells produce their spores normally within the lichen, but we never saw a single algal cell penetrated by a fungus thread.

Nitrogen Fixation in Nature.

Before turning to examples of team-work by fungi and flowering plants, I would like to remind you of a few rather dry facts of chemistry. The ultimate end of all living matter is decomposition, decay. The carbon compounds break up into water and carbonic acid gas, and the carbonic acid gas is returned to the atmosphere. The nitrogen containing compounds or proteids are finally resolved into ammonia and nitrogen, and the nitrogen leaks away into the atmosphere. The water and carbonic acid gas can be used again by green plants, and with the help of light built up once more into those complex substances of which they are composed, but they cannot touch the nitrogen at all. The constant tendency of ordinary organic life is therefore to increase the nitrogen in the air at the expense of that contained in plants and animals, and had not Nature provided some means of replacing the nitrogen thus lost the world would very rapidly become uninhabitable for plants and animals. That cultivated plants often suffer from nitrogen hunger was perhaps the most important agricultural discovery of the last century, and to make up this deficiency thousands of tons of nitrates from South America and sulphate of ammonia from the gas works are added every year by farmers to their land. It is true that every flash of lightning results in the combination of small quantities of free nitrogen to form ammonia and this is brought down to earth by dew and rain. But the total amount of ammonia thus carried down does not exceed 5 lb. per acre per year—an amount entirely inadequate to replace that lost by the ordinary processes of decay. At the end of the last century, therefore, it became evident to scientists that there must be some way as yet undiscovered by which Nature carries out the combination of free nitrogen to make it available to organic life.

Root Nodules of Leguminosæ.

For centuries it has been known that certain plants have a wonderful power of rendering barren tracts of land capable of producing crops. Thus Pliny tells us that "The bean fertilises the ground in which it has been sown as well as any manure." Waste land in Germany and America has been rendered fertile by the planting of lupins. Now it is only leguminous plants like the pea, bean, lupin, clover, and the like that have this power and they all have nodules on their roots. This is easily seen when a bean or lupin is pulled up. These root nodules are the key to the situation, for in them is taking place what is to us the most important example of team-work in Nature for without it we could not live.

A very small bacterium (*Pseudomonas radicicola*) is met with in abundance in the soil, more especially where leguminous plants have been grown. When it comes across a root hair of a leguminous plant it punctures the cell wall and enters one of the cells. There it multiplies rapidly until a mass of closely packed rod-shaped bacteria embedded in a gelatinous substance is produced. This infection thread, as it is called, passes inwards from the cells of the root hair to those of the root from which it grows. The irritation thus caused results in rapid multiplication of the cells of the root and the formation of a nodule or swelling containing cells crowded with bacteria. These root nodules have been shown experimentally to absorb nitrogen from the air and the bacteria they contain become filled with nitrogen-containing food substances. But about the time of flowering a change occurs. A ferment is secreted which dissolves the bacteria and the valuable food they contain. After this has been absorbed by the plant the nodules shrivel and decay. A few of the bacteria, however, escape destruction and find their way into the soil. These root nodules undoubtedly show a "community of interest" between the two partners, but whether we can consider it a true example of symbiosis is, at least, open to question. The bacteria score at first in that they acquire a comfortable home with everything found, but in the end the higher plant comes off best.

Other Flowering Plants.

A careful study of flowering plants teaches us that nearly all have fungi associated with them at some stage or other of their life-history. With the Darnel (*Lolium*), a common grass, the fungus is there all the time—from the cradle to the grave, so to speak. The grass appears perfectly healthy and is thought to score in that the fungus threads in the seed form a store of food easily absorbed by the young plant. In return for this the fungus is housed and fed and allowed to pass from one generation to another in the seed.

In the Heather (*Calluna vulgaris*) a fungus is also found in every part of the plant, but though present in the seed coat, it never extends directly to the seed. If heather seeds dipped in strong disinfectant and then washed are sown on sterilised soil they germinate imperfectly, develop one or two leaves, and then die. If, however, the fungus obtained from the heather is added to the soil on which such seedlings are growing they develop normally and form healthy young plants. The heather absolutely refuses to grow without its fungus partner.

[Mr. Somerville Hastings here described how a fungus is constantly present in the roots of orchids, and how the seeds will not germinate without it.]

Toadstools and the Mycorrhiza.

For many generations people have thought that there was something mystic and uncanny about toadstools. Because they come up quickly and have no obvious root they were thought to have been placed in woods and fields by witches and fairies, and it was told how the fairy-ring toadstool (*Marasmius oreades*) always came up where fairies had danced at night. Then scientists came along, and finding that toadstools were always attached to fine filaments of a fungus plant ramifying in the soil, they thought they had solved the problem. They told us that the fungus plant of which the toadstools were but the fruits, formed for the purpose of producing and distributing spores, lived on decaying animal and vegetable matter in the soil, and they proceeded to give the toadstools themselves many and long Latin names. But when the scientists turned their attention to trying to work out the life-history of these same toadstools, as they are now doing, they found that things were not always quite so simple and that an increasing number of toadstools were found to be constantly associated with some other plant. The Fly Agaric (*Amanita muscaria*), with its beautiful red top covered with white spots, for example, is invariably found close to where birch trees are growing or have recently grown. When the fine filaments from a toadstool are carefully traced to their source (a by no means easy task) they are often found to end in the roots of some tree or herb. In a few cases this association is definitely harmful to the plant—the fairy-ring toadstool plant, for instance, is said to grow parasitically on the roots of grasses—but in most cases the herb or tree appears to be in no way inconvenienced by the presence of its fungus partner. The association of fungus with the roots of a higher plant is spoken of as a mycorrhiza. If the dead leaves around almost any woodland tree be scraped away, numerous fine branching rootlets will be seen passing in all directions through the decaying leaves The ends of the rootlets appear swollen and with a pocket lens fine fungus threads can be traced to them. When the threads reach the rootlets they surround them with a closely woven mantle, but in the case of most trees do not penetrate to any extent into the tissues of the root. The immediate effect of the fungus on the rootlets is to arrest their growth in length, and as a result of this more frequent branching occurs. Already some 80 different associations between fungi and woodland trees have been described, and this does not by any means complete the list. Indeed, mycorrhiza would appear to be constantly present during the life of most forest trees. It is certainly present in young seedlings of the birch, beech, and edible chestnut. Paulson states that mycorrhiza has formed on birch seedlings growing on light soil within a month of the germination of the seeds, and although he has examined a large number of seedlings of all ages he has never yet seen one on which mycorrhiza had not formed or was not forming. The presence of mycorrhiza can hardly be really harmful to the birch seedlings, for such plants grow as much as two feet during the first year.

The Meaning of Mycorrhiza.

We are now in a position to inquire what is the real meaning of mycorrhiza. Is it useful to fungus or higher plants, or to both? How did it arise in Nature? In the first place, mycorrhiza is no new-fangled device. Examples are found around roots of fossilised plants from the Devonian and lower coal measures. Again, it is widely distributed in Nature, and has been described in association with liverworts, mosses, horsetails, club mosses, ferns, conifers, and flowering plants. Gallaud carefully examined the roots of 35 different flowering plants of widely separated genera. In 30 he found fungi present with great regularity and obtained them also with less constancy from the roots of four of the others. That mycorrhiza is generally harmless to plants would seem to be borne out by the examination of birch seedlings, and Gallaud's observations on the cuckoo-pint (*Arum maculatum*), a plant which is found sometimes with and sometimes without mycorrhiza. Gallaud could find no difference between infected and non-infected plants attributable to infection.

In this connexion the following observations by Paulson are not without interest. The story is still incomplete, but as far as it goes it would seem to indicate that the birch has been "fitter to survive" when its young root is supplied with fungus. The birch has a small winged seed. The styles formed in the early spring dry up and remain persistently attached to the seed. Close examination of the seeds before germination, and even before they have fallen to the ground, has revealed the fact that fine fungal threads often exist around these styles and stretch from one style to another. Between the styles is a small hole in the seed coat through which the young root is bound to pass when the seed germinates. On the surface of the young root are a number of hooks which prove remarkably effective in catching the angled weft of fungus threads, tearing them from the styles and carrying them downward to the soil.

The association between the "stump tuft" toadstool (*Armillaria mellea*) and a Japanese orchid (*Gastrodia elata*) is of importance as it would appear to give the clue to the origin of mycorrhiza. The stump tuft is one of the commonest of British fungi. It often forms large groups of toadstools at the root of a tree or stump. The fungus is a destructive parasite, and more trees are probably destroyed by it than by any other parasitic agent. Having infected one tree it passes through the ground to the next in form of thick black masses of fungus threads resembling leather bootlaces. When it has killed a tree it forms similar masses between the wood and bark. These become obvious when the bark has decayed or has been removed. Although this fungus usually attacks trees it is not above destroying potatoes if its root-like threads come across them.

The Japanese orchid *Gastrodia*, which grows in woods, forms tuberous masses resembling a large potato buried in the ground. Every year these tubers give off offsets just as a potato does, but no leaves or flowers are in the ordinary way produced. Each year the offsets become progressively smaller until finally they are incapable of further growth. If, however, one of the root-like masses of fungus threads from the stump tuft comes in contact with the orchid tuber a wonderful change occurs. The fungus fastens on to the tuber, and its threads penetrate its outer covering. But instead of succumbing to the attack and giving up its store of nourishment as the potato does, the orchid is able to hold the fungus in check and make use of the food it brings. As a result of this a full-grown offset is produced, which the next year develops flowers and presumably seeds as well. Here we have a fungus well known all over the world as a destructive parasite. It attacks the thickened underground root of an orchid, but becomes worsted in the struggle and is made to give up some of the booty it has stolen from the forest trees around.

May not mycorrhiza have arisen somewhat in this way? May not the higher plants have developed an immunity against fungi originally parasitic on their roots, so that they are now able to hold them in check and actually derive benefit from them?

Dispersal of Spores.

But it is in connexion with the dispersal of their spores that some of the best examples of team-work between fungi and other creatures is seen. Many toadstools are frequently eaten by slugs, and the germinating spores of several kinds were found by Voglino in the digestive tracts of slugs that had eaten them. Further, this observer showed that the spores of other species that could not be made to grow elsewhere germinated readily in the fluid from the digestive tract of a slug.

There are a large number of fungi especially characteristic of tropical regions, that show an unmistakable adaptation for the dispersal of their spores by insects. Perhaps I shall explain my meaning best if I give you a brief description of the stinkhorn (*Phallus impudicus*) common in our woods. In its early stages it closely resembles an ordinary hen's egg with a softened shell lying half embedded in the soil. When mature its outer gelatinous coat ruptures at the top, and the stalk, which had previously resembled a compressed sponge, rapidly expands until in from one to three hours it has increased its length from an inch and a half to six or eight inches. Carried aloft by the white stalk is a conical cap covered by a dark-green glutinous substance in which are embedded millions of spores. After a few hours, especially in the presence of light, the dark-green slimy material begins to give off a fœtid and disgusting smell. Bluebottles and smaller flies, attracted by the smell, eagerly devour the dark-green slimy material, and so greedy are they that but rarely do we find a fully developed stinkhorn with any trace of the dark slime upon it. The spores pass unchanged through the insect's body, and in this way their dispersal is effected.

Here we have a wonderful piece of fungus mimicry. In colour, consistency, and odour the spore-containing mass closely resembles the putrescent substances which form the normal food of blow-flies; and that insects are taken in by it is shown by the fact that they not infrequently lay their eggs on the fungus and around. Again, the timing arrangements are very perfect. While the spores are maturing they are carefully protected, and not until they are ready for dispersal are they exposed. They are then raised up on a white stalk which is easily seen from a distance. Other members of the class are brightly coloured. The lattice fungus (*Clathrus cancellatus*) is bright red all over and the dog-stinkhorn (*Mutinus caninus*) is red at the top. Some of the exotic forms resemble flowers. An Australian species (*Lysurus australiensis*), which came over to this country with fodder, has this appearance.

It is well known that edible truffles are eagerly sought after by pigs and greedily devoured by them, and the fact that these fungi are only strong-smelling when quite mature and filled with ripe spores suggests that this must be something of a coöperative arrangement, and that it is really to the interest of the fungus to be thus eaten. The false truffle (*Elaphomyces*) is also regularly dug up and eaten by squirrels and rabbits, and gnawed specimens are often seen where these animals have been burrowing. The rabbit apparently eats the fungus in the burrow, but the squirrel digs it up first. Spores of the false truffle have been found in the fæces of wild animals, and no other method for the dispersal of the spores of the false truffle is known.

These are a few examples of team-work. When you visit the wards of the Middlesex Hospital you will see even finer examples. There you will find physicians, surgeons, sisters, nurses, not to mention the humble specialists, all united in the single purpose of healing the sick. In the medical profession the value of team-work has been recognised from the earliest times. When an engineer finds out a new process he patents it, so that none but he may use it. When a doctor makes a discovery it is the tradition of his profession that he should publish it to the world, so that all his colleagues and their patients may benefit thereby. For this reason as well as for others, I congratulate you who are joining us to-day on the choice which you have made.

EARLY EXPERIENCES WITH INSULIN IN THE TREATMENT OF DIABETES MELLITUS.

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SEVERAL publications regarding the uses and properties of insulin have already appeared in this country, notably those by Banting, Campbell and Fletcher,[1] and by McLeod,[2] but hitherto little detailed information has been published as to the actual results in individual cases. The following investigations have been carried out by us in connexion with the joint scheme of work on insulin initiated by the Medical Research Council. The methods used were: Blood-sugar, Folin and Wu[5]; blood-bicarbonate, Van Slyke, Stillman and Cullen[8]; alveolar CO_2, as described by Campbell, Hunt and Poulton[4]; urinary sugar, Benedict[12]; total ketones (aceto-acetic and β-oxybutyric acids expressed as acetone), Van Slyke[6]; and Van Slyke and Fitz,[7] ammonia by formol titration, urea by hypobromite.

Treatment of a Refractory Case.

This case was specially chosen for treatment in the first place as the patient had on previous occasions been under the care of one of us and we had watched the disease making rapid progress.

CASE 1.—Male, aged 17½, had had the disease since March, 1921. He was under treatment in Guy's Hospital in May, 1921, and responded well to fasting and dietetic treatment, since the blood-sugar at 3 P.M., nine days after the beginning of the treatment, was 0·08 per cent. No sugar was passed on a sufficient diet, containing 4 oz. of bread and plenty of 5 per cent. vegetables. He was sent out on a diet containing 2 oz. of gluten bread, so that he was a long way within his carbohydrate tolerance. He was readmitted in July, 1922. His weight had increased by a stone. He had been eating porridge for three months. There was much sugar in the urine and much ketosis. He became sugar-free with fasting, but the sugar returned at once on beginning a diet of vegetables, protein, and fat.

Readmission to Hospital.—He was readmitted in March, 1923, for insulin treatment. There was much ketosis; he was feeling weak and sleepy, and it was thought he would not have lived more than a few months.

The patient was under treatment with insulin in hospital for 108 days. The extreme severity of the case is one of the reasons for describing it in some detail. It was found that at least 75 units of insulin were required each day to keep the blood-sugar within reasonable limits and the urine free from sugar. The diet was varied to some extent, but the calorie value was rarely above 2000, so that it could not be said to be excessive, considering that the patient was walking about. As it was he often felt hungry. His body-weight increased from 129 lb. to 150 lb. at the end of the treatment. During part of the time he was allowed practically unlimited 5 per cent. vegetables in the form of greens, tomatoes, salad, rhubarb, &c., and he used to take about 32 oz. a day. During the last month of his treatment the amount was reduced to 16 oz. Graham and Harris[13] have emphasised the importance of restricting as far as possible the amount of carbohydrate in the diet when giving insulin. We have adopted the same plan from the beginning of the treatment; for it seemed to us that only by such means would it be possible for a patient to regain some carbohydrate tolerance.

It is, of course, difficult to exclude the possibility of the patient's stealing food. However, he was an educated boy and understood the reason for his treatment, and we believe he was honest. At one period he was kept under lock and key in a private ward for some days, and no marked difference in the blood- and urine-sugar was observed.

We can thoroughly confirm all that others have said about the beneficial effects of insulin treatment in his case. His body filled out and his skin became softer and smoother, and his hair more glossy, and he had the appearance of an extremely healthy young man when he left the hospital. His constipation vanished and he noticed that emissions, which had disappeared since November, 1922, returned 14 days after beginning the insulin. The latter was given in three equal doses at 6 A.M., 12 noon, and 6 P.M. each day before meals. At first we used what we had ourselves prepared in the laboratory by arrangement with the Medical Research Council; but the commercial preparation was employed as soon as it was available. No serious local trouble was experienced in spite of the numerous injections. The blood-sugar was nearly always examined at 11.45 A.M., just before the mid-day dose of insulin.

Progress of Case.—To indicate the progress of the case, the average excretion of sugar, acetone bodies, &c., has been taken for various periods, when the conditions of diet, insulin dosage, &c., remained constant (see Table I.). There was a preliminary period, when the diet contained 2 oz. of bread. During three days there was an average excretion of 132 g. of sugar and 8·2 g. acetone. After fasting for three days the blood-sugar was 0·23 per cent., but rose above this figure when a diet of vegetables, proteins, and fat was given, in spite of the administration of 24 units of insulin daily. However, the excretion of sugar and ketones and the ammonia index were less when the insulin was given than when it was omitted during the next period. Only when a dose of 40 units was combined with a fast day did the sugar and aceto-acetic acid in the urine practically disappear. Then followed two periods of seven days on the same diet, when the dose of insulin was 60 units and the excretion of sugar and ketones was much less than before the fast day. During part of this time, as already stated, the patient was locked in a private room so as to exclude the possibility of his taking carbohydrate of his own accord. On increasing the dose slightly to 65 units the urine-sugar and ketosis were practically abolished, though the diet remained the same, and he had definite hypoglycæmic symptoms—viz., headache, giddiness, shakiness, sinking feelings, and hunger. The blood-sugar at the height of the symptoms was found to be 0·095 per cent. These feelings came on in waves, and there was also profuse sweating. He had noticed flushing and increased sweating when the blood-sugar still remained high. This point is referred to later.

The amount of insulin was at once reduced to 50 units, and he remained sugar-free for three days. As his blood-sugar rose to 0·19 the amount was again increased to 60, but in spite of this sugar appeared in the urine for a period of eight days. Although the calorie value of the diet was increased a little by the addition of fat, he again ceased to pass sugar for seven days and his blood-sugar fell to 0·16 per cent. Wishing to bring this figure still lower, we increased the amount of insulin to 65 units daily, but in spite of this during the next five days he excreted 11 g. sugar daily, and his blood-sugar rose to 0·22 per cent. On increasing the amount to 75 units daily he became sugar-free for nine days, but then passed 22 g. of sugar on one day with a blood-sugar content of 0·18. Suspecting that the large supply of 5 per cent. vegetables was responsible for the sugar, we reduced them to 4 oz. daily. His blood-sugar fell progressively from 0·18 per cent. to 0·13 per cent., and a mere trace of sugar was passed. He was then given 16 oz. of 5 per cent. vegetables, and after this no further change in his diet was made. His blood-sugar varied from 0·13 to 0·20, but he only passed traces of sugar as long as he was free from infection.

From the description just given the patient appears to be subject to variations in the severity of his complaint. For instance, examining the blood-sugar figures for the days preceding his hypoglycæmic symptoms they show the beginning of a remission (0·26 per cent., 0·25 per cent., 0·19 per cent.), thus explaining the marked fall in blood-sugar apparently produced by increasing the insulin from 60 to 65 units. The exacerbation of symptoms, as shown by a rise in blood-sugar and glycosuria, was often associated with infection, such as a cold in the head, and there was sometimes a slight rise in temperature. In particular towards the end of the treatment he had a sharp attack of tonsillitis with a temperature of 102·8° F., and he passed a measurable amount of sugar—viz., 8 g. per diem.

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* Working on behalf of the Medical Research Council.

The blood bicarbonate was estimated at the beginning of the treatment. It rose to normal at a time when the patient was still passing measurable though small amounts of ketones.

The Action of Insulin on Ketosis.

One of the most striking effects of insulin is the rapid fall in ketosis which follows its administration. Davies, Lambie, Lyon, Meakins and Robson[3] observed a fall in the blood ketones beginning within an hour or so after injecting insulin; in association with this there was a rise in blood bicarbonate and a fall in blood-sugar. We have carried out observations upon somewhat similar lines, and in addition we have determined quantitatively the ketones in the urine. Since there is a simultaneous fall of ketones in both blood and urine, it is clear that insulin acts not by causing an increased excretion of ketones, but by preventing their formation in the body, or perhaps actually metabolising them in some way.

The rapid action of insulin was well illustrated in Case 2.

CASE 2.—Male, aged 9 years, seen by one of us in conjunction with Dr. R. G. Pollock, of Warlingham. The disease began acutely in January, 1922. At the beginning he had done moderately well with dietetic measures, including weekly fast-days, and the urine had remained sugar-free for certain periods, although he had been allowed some starch in his diet. Just before treatment the sugar had shown a rapid increase and there was much ketosis. The blood-sugar was 0·35 per cent. Insulin, 10 units, was administered the next day at 6 P.M. In three and a half hours the blood-sugar was 0·11, but had risen to 0·4 24 hours later. The percentage of sugar in the urine fell from 4·6 to 0·4 in six hours. The alveolar CO_2 rose from 21 to 28 mm. in three and a half hours. The urine collected for 12 hours before the insulin contained 10·1 g. total acetone, and that collected for 12 hours after only contained 1·6 g.

CASE 3.—Table II. contains the figures obtained in this case, a female, aged 29 years, whose disease began in August, 1922. An injection of 10 units produced a fall in blood-sugar from 0·27 to 0·12 in two hours, and three hours later the blood-sugar still remained low. Sugar disappeared from the urine for at least six hours. The fall in the total ketones of the urine was also marked. There was a small rise in alveolar CO_2. The ammonia index (percentage of total nitrogen excreted in the form of ammonia) rose slightly, because there was a rather bigger relative fall in the output of total nitrogen than of the ammonia. The blood bicarbonate (molecular concentration of $NaHCO_3$) showed an increase from 0·025 to 0·029 in two hours.

CASE 4.—Male, aged 38, admitted on May 27th, 1923, for pneumonia and pleurisy. He developed diabetic coma soon after admission. (He had been previously treated in January, 1923, by one of us by fasting and dietetic measures, but continued to pass some sugar in the urine with a blood-sugar of 0·33 per cent.) The blood was taken when he was comatose (see Table II.) at 11 A.M. The blood-sugar was 0·56 per cent.; the plasma bicarbonate was reduced to 0·008 (normal 0·034); and the concentration of blood ketones was 0·18 per cent. He was given an injection of 40 units of insulin with 50 g. of dextrose, and 2 pints of sterile normal saline through a nasal tube, and subsequently 1 pint of saline hourly for six hours. The blood was examined again at 4 P.M. The blood-sugar remained unaltered, so that the insulin had just neutralised the effect of the dextrose given. The plasma bicarbonate had increased to 0·013 and the blood ketones had diminished to 0·12 per cent. There was an associated fall in the amount of ketones excreted in the urine.

Shortly after the first dose of insulin the patient returned to consciousness and the pulse improved. The intake of fluid was continued, after the second dose of insulin, and sodium bicarbonate was ordered by mouth. At midnight the patient suddenly collapsed and, in spite of a further dose of 20 units of insulin, died within an hour or two. This case is not a fair test of insulin treatment in diabetic coma owing to the pulmonary complications present. We have since treated successfully an uncomplicated case of diabetic coma.

Several things emerge from a critical examination of the analyses in this case. A figure of 16 for the ammonia index is surprisingly low considering the extent of the ketosis, and there was a rise to 21 rather than a fall, when the ketosis became less. The plasma bicarbonate was extremely low, corresponding to a very high concentration of blood ketones. In Table II. the excretion of ketones in the urine is given as 0·87 g. per hour before the insulin. This figure is probably too high, because the bladder was not emptied with a catheter at 8 A.M., and at this time the patient was more or less unconscious. Consequently, the 636 c.cm. of urine collected at 11 A.M. were probably secreted over a longer period than the preceding three hours. The amount excreted from 11 A.M. to 4 P.M. was only 0·28 g. There was also a fall in percentage of ketones in the urine from 0·41 to 0·26. Hence, the decrease in blood ketones was due not to increased excretion, but to diminished production (or increased destruction) in the body. In fact, considering the high value of the blood ketones at 4 P.M., we must look upon the small output in the urine as indicating some failure on the part of the kidney to excrete them.

Our case is of some importance since there is at present a tendency not to prescribe sodium bicarbonate and other metallic bases in cases of diabetic coma. Sodium bicarbonate was not ordered in the present case until we had been made aware of the very low value of the plasma bicarbonate. This case convinces us that it is most important to give sodium bicarbonate and other alkalies in moderate quantity whether by mouth, or intravenously, as soon as possible in the treatment. It is unsafe merely to arrest the production of ketone bodies by means of insulin and dextrose. There is some further evidence that this failure of excretion was due to the body being impoverished by loss of metallic bases. The fall in plasma bicarbonate in severe cases is usually regarded as compensating for the large amount of β-oxybutyric and aceto-acetic acids in the blood, so that the sum of their molecular concentrations should be constant. However, calculation in the present case shows that this was not quite true, the value being 0·039 before treatment and 0·034 five hours later; in other words, the plasma bicarbonate did not rise as much as would be expected, considering the fall in blood ketones. Again, the ammonia index rose (as already mentioned), which suggests that ammonia was produced in default of metabolic bases to help the excretion.

CASE 5.—Male, aged 29, who had had symptoms of diabetes for nine months. The data as regards the effect of insulin on the blood-sugar and ketosis are shown in Table II. On June 11th there was a moderate degree of ketosis. The fall in plasma bicarbonate was roughly equivalent to the increase in the acids of the blood, since the sum of the two was 0·0365, which is about the upper limit of the normal plasma bicarbonate. Considering the low concentration of ketones in the blood, their excretion by the kidney was satisfactory. With the exception of the period from 2 to 4 P.M. it fell parallel to the blood ketones. The patient was given one dose of 10 units of insulin a day, from June 11th, and a week later the analyses of blood and urine after insulin were repeated. The blood ketones had fallen to 0·0024 per cent. and the hourly excretion of ketones was only 0·03 g. After insulin the blood ketones and ketones excreted in the urine were still lower.

The Effect of a Single Large Dose of Insulin.

The following case shows the effect of a single large dose of insulin:—

CASE 6.—Female, aged 28 years, suffered from thirst in May, 1922. She was admitted to Guy's Hospital in January, 1923, with diabetes. She complained of cramps in the calves and feet, and had extensor plantar reflexes. The sugar disappeared from the urine after two days' fast, but reappeared on taking a diet of 5 per cent. vegetables, protein, and fat.

She was readmitted for insulin treatment. On a diet of 5 per cent. vegetables, protein, and fat for a week, she passed daily a very constant amount of sugar—on the average 127 g. The blood-sugar was 0·42 per cent. On fasting for two days the sugar vanished from the urine (see Fig. 1), and the blood-sugar fell to 0·125 per cent. at the end of the fast. She was then given a diet of vegetables, protein, and fat in gradually increasing quantities, and the amount of sugar in the urine gradually increased as shown

TABLE I. (*Case 1*).

Days.	Insulin units per diem.	Blood.		Urine per diem.			Diet per diem.			
		Sugar per cent.	Bicarb. mol. concn.	Sugar g.	Total ketones g.	NH_3 index.	—	Cals.	Protein g.	Carbo-hydrate g.
3	0	—	—	132	8·2	12·3	V.P.F. + 2 oz. bread.	1660	69	15
3	0	0·23	0·023	35	8·6	18·0	Fast	—	—	—
5	24	0·21	0·034	42	2·8	8·5	V.P.F.	1540	81	15
4	0	0·33	0·027	113	14·2	13·8	"	"	"	"
5	40	0·335	—	94	6·9	9·5	"	"	"	"
1	40	—	—	Tr.	0	—	Fast	0	0	—
7	60	0·25	0·033	20	0·2	4·4	V.P.F.	935	62	19
7	60	0·25	0·03	22	Tr.	4·1	"	1755	83	21
3	65	0·105	—	0	"	—	"	"	"	"
3	50	0·12	—	0	0·9	2·1	"	1805	93	"
8	60	0·19	—	5	—	—	"	"	"	"
7	60	0·16	—	0	—	—	"	2030	"	"
5	65	0·22	—	11	—	—	"	"	"	"
9	75	—	—	0	—	—	"	"	"	"
1	75	0·18	—	22	—	—	"	1854	73	5·5
3	75	0·155	—	0–Tr.	—	—	"	"	"	5·5
4	75	0·13	—	"	—	—	"	1950	80	14
8	75	—	—	8	Tonsillitis.		"	"	"	"
6	75	0·19	—	0–Tr.	—	—	"	"	"	"

Tr = trace. V.P.F. = 5 per cent. vegetables, protein, fat.

TABLE II.

Urine.						Blood.					
Time.	Vol. c.cm.	Sugar %.	Ketones %.	Ketones g. per hr.	Ammonia index.	Time.	Sugar %.	Plasma bicarb. mol. concn.	Ketones %.	Sum of mol. concns. of bicarb. and ketones.	Alv. CO_2 mm.
CASE 3.—10 units at noon.											
8 A.M.–12 noon	400	2·8	1·03	1·03	21·0	12 noon	0·27	0·025	—	—	23·3
12 noon–3 P.M.	150	0	0·88	0·44	27·0	2 P.M.	0·12	0·029	—	—	27·2
3–6 P.M. ..	300	0	0·32	0·32	25·0	5 " ..	0·125	0·028	—	—	25·6
6 P.M.–8 A.M.	900	1·4	0·75	0·48	22·0	—	—	—	—	—	—
CASE 4.—Coma, 40 units at 11 A.M.											
? 8 A.M.–11 A.M.	636	2·7	0·41	0·87	16·0	11 A.M. ..	0·56	0·008	0·18	0·039	—
11 A.M.–4 P.M.	536	2·3	0·26	0·28	21·0	4 P.M. ..	0·56	0·013	0·12	0·034	—
CASE 5.—10 units at 2.10 P.M., June 11th.											
8 A.M.–2 P.M.	240	2·6	0·38	0·15	8·2	2.5 P.M.	0·22	0·028	0·05	0·036	—
2–4 P.M. ..	185	2·5	0·50	0·46	7·8	3.50 "	0·22	—	0·038	—	—
4–8 P.M. ..	180	0·6	0·29	0·13	6·7	5·45 "	0·16	—	0·029	—	—
10 units at 12.10 P.M., June 18th.											
8 A.M.–12.30 P.M.	354	0·9	0·037	0·03	8·8	12 noon	0·185	0·023	0·0024	0·023	37·7
—	—	—	—	—	—	2·0 P.M.	0·16	—	—	—	—
12.30–4.30 P.M.	340	Sl. tr.	0·0014	0·001	9·3	4.0 "	0·13	0·026	0·0008	0·026	38·1
	—	—	—	—	—	6.5 "	0·14	—	—	—	—

Sl. tr = Slight trace.

TABLE III.

—	Case 1.			Case 9.			Case 6.		
Date	April 19th.	June 18th.	June 17th.	May 3rd.	May 8th.	May 23rd.	—	June 20.	June 21.
Method of administration	Subcutaneous.	Mouth c. sod. bicarbonate.	—	Subcutaneous.	Rectum.	—	—	Subcutaneous— At 6 A.M. and 6 P.M.	At 6.30 A.M. gum insulin
Insulin, units ..	20	25	0	10	10	0	—	10	30
Time in hours—							Time—		
0	0·335	0·19	0·135	0·175	0·21	0·16	6.30 A.M.	—	0·16
1							10.30 "	0·16	—
2	0·315						11.30 "	—	0·08
3	—	0·23	0·16	0·17	0·30	0·255	2.30 P.M.	0·225	0·11
4	0·29						5.30 "	0·225	0·18
5	—	0·25	0·195		0·28	0·22			June 22nd
Maximum difference	−0·045	+0·06	+0·06	−0·005	+0·09	+0·095	10.30 A.M.	—	—
Sugar in urine ..	—	—	—	0	0·8 %	0	—	—	0·23

CASE 9.—Insulin given just before the midday meal, which contained 1½ oz. bread.
CASE 6.—Blood-sugar at 10.30 A.M. on June 22nd was 0·23 per cent.

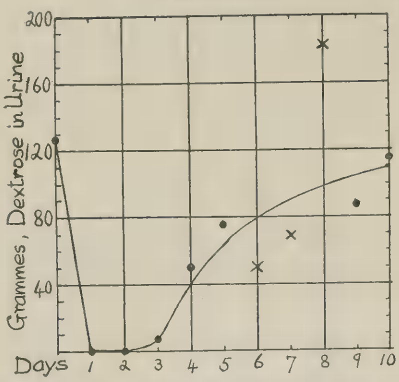
TABLE IV.—*Respiratory Exchange* (*Case 1*).

No.	Date.	CO_2 c.cm. per min.	O_2 c.cm. per min.	R.Q.	Blood-sugar %.	Date.	CO_2 c.cm. per min.	O_2 c.cm. per min.	R.Q.	Blood-sugar %.
	With insulin.					*Without insulin.*				
1	July 6th	302	253	1·19	0·155	July 10th	336	390	0·86	—
2	July 7th	334	306	1·08	0·19	July 10th	307	356	0·86	0·32*
3	July 9th	349	355	0·98	0·20*	July 11th	306	362	0·84	0·26
—	Mean	328	305	—	—	—	316	369	—	—

* After lunch, at 9.30 A.M.

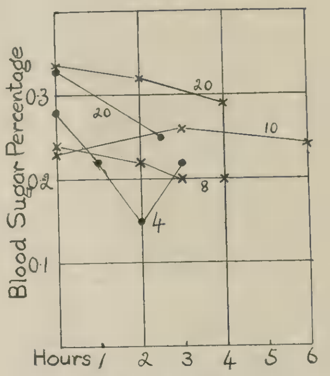
by the curve. On the sixth day (the fourth day after the fast) insulin was given, but owing to a mistake 100 units were injected instead of 10. The mistake was realised immediately, and the patient was given 50 g. dextrose, and 4 oz. bread by the mouth, so that she received in all 110 g. carbohydrate. This treatment was successful in preventing hypoglycæmia from the large dose of insulin, since the blood sugar, which was 0·28 before the insulin, was 0·285 two hours later, and 0·24 the next morning (20 hours later). She felt very hot and sweated, but we would lay emphasis on the fact that these so-called hypoglycæmic symptoms are not necessarily due to hypoglycæmia in the usual sense of the word. Case 1, for instance, noticed frequent hot flushes and sweating ever since the beginning of his treatment, even though the blood-sugar was still high. In fact, hypoglycæmic symptoms arise when the blood-sugar falls below the percentage to which the body is accustomed for the time being, so that they may be felt when the blood-sugar is normal or even higher than normal.

FIG. 1.



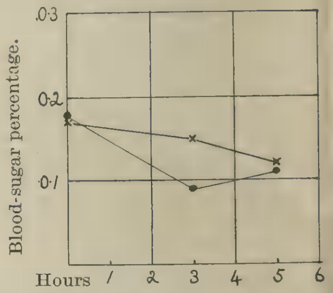
CASE 6.—Sugar in urine. Patient fasted the first two days. Insulin (100 units) administered on sixth day, immediately followed by intake of 110 g. carbohydrate.

FIG. 2.



CASE 1.—Blood-sugar immediately before and after injection of insulin. The numbers in the diagram refer to the numbers of insulin units employed.

FIG. 3.



CASE 8.—Blood-sugar immediately before and after injection of insulin (10 units).

The black dots indicate determination carried out shortly after a period of fasting, and the sign (×) indicates determination on an adequate diet.

As will be seen from the curve, the amount of sugar excreted was diminished on the sixth day when insulin was given, and on the seventh day; but on the eighth day the excretion suddenly rose to 182 g. (blood-sugar 0·43 per cent.), but fell back again on the ninth and tenth days. The curve in the figure has been drawn to represent what the excretion of dextrose would have been if no insulin had been given on the reasonable assumption that the insulin was alone responsible for the irregularities on the sixth, seventh, and eighth days (marked in the figure by crosses), and that the sugar output was otherwise gradually increasing after the fast to the previous level.

Inspection of this diagram gives us information of interest as to the action of insulin. It has been suggested by Kellaway and Hughes[9] from experiments on normal subjects that insulin may cause sugar to be built up into some fat-like complex, containing considerably less oxygen than carbohydrate. Now if this building-up process occurs in diabetes it might perhaps be supposed that after the action of the insulin was over (if only one dose were given) this complex would break down again into sugar which would be entirely excreted. Our observations provide evidence that storage of at least part of the sugar in some form took place.

The evidence is as follows. On the first two days showing the effect of the insulin (sixth and seventh days in Fig. 1) there were 50 g. less sugar excreted than would have occurred if no insulin had been given. In addition, 110 g. of carbohydrate were ingested in the form of glucose and bread on the sixth day. Consequently at the end of the seventh day the body contained 160 g. of extra carbohydrate owing to the insulin. On the third day the blood-sugar rose, and 85 g. of the extra dextrose were excreted. After this the excretion was normal. Consequently 85 g. of dextrose were retained for two days in the tissues, but not in the blood, and may well have been elaborated temporarily into some complex which broke down again into dextrose, when the effect of the insulin had worn off. However, 75 g. of dextrose remains unaccounted for, and it is difficult to avoid the conclusion that it was burnt, because it apparently disappeared completely.

Variations in Effect of Insulin on Level of Blood-sugar.

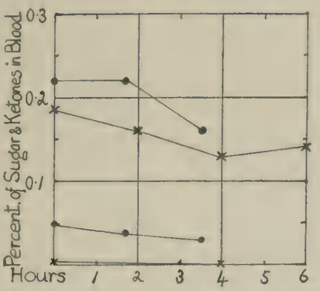
The amount of insulin required to produce a given fall in blood-sugar varies greatly in different patients. We have, however, found a considerable variation at different times in the same case, in the sense that a dose of insulin produces a much bigger fall in blood-sugar at the beginning of treatment than it does later on.

Case 7, seen with Dr. G. L. Cutts, was a man aged 29, who had had diabetes for one and a half years. The urine became sugar-free after three days' fasting. He was then given a diet of vegetables, protein, and fat (calorie value increasing from 1200 to 1500), and on the day after fasting with blood-sugar, 0·32 per cent., he was given an injection of 10 units of insulin, and this was repeated each day following. The blood-sugar was estimated four hours later on several days. The urine became sugar-free after the first two injections. After the second injection the blood-sugar was 0·12 per cent., and after the sixth injection 0·22 per cent.; and a similar value was obtained two days later after the eighth injection. The effectiveness of insulin in reducing the blood-sugar apparently diminished quite soon after the treatment had begun. This patient had suffered from boils for over two months, and these completely disappeared in eight days from the beginning of the insulin treatment.

Similarly, in Case 3, we obtained a fall from 0·27 to 0·12 after the first injection of insulin (10 units), but later on values of 0·18 and 0·21 per cent. were obtained three hours and five hours respectively after injecting twice as much insulin as before. Case 1 was a good instance of this variability (see Fig. 2). The insulin was always given at 11.45 A.M., just before the mid-day meal. The blood-sugar was determined just beforehand and at varying intervals afterwards. The patient had fasted for three days and then had an increasing diet of vegetables, protein, and fat. On the fourth day, after the end of the fast, while the calorie value of the diet was 1540, the first dose of insulin—viz., 4 units—was given. There was a marked fall of 0·13 per cent. in the blood-sugar in two hours. On the next day, with 8 units, the fall was less—viz., 0·04 per cent.—and it took place more slowly. One month later 10 units were given, and this was not sufficient to prevent the rise of blood sugar due to the meal. The patient had gained 9 lb. in weight by this time.

We have similar results (also shown in Fig. 2) when 20 units of insulin were given to this patient, one of them on April 19th just before, and the other on April 21st just after, a one day's fast. In the latter case a fall of 0·08 per cent. in the blood-sugar was noticed, and in the former case the fall was only 0·045, and also took place more slowly. A very similar result was obtained in Case 8 (see Fig. 3), a man of 18, whose symptoms of diabetes were first noticed 15 months earlier. The first dose of insulin was given on the fourth day, after a two and a half days' fast. There was a fall of 0·09 per cent. in the blood-sugar. He was treated with 10 units each day at noon, and 37 days later, after he had gained 1 lb. in weight only, the observations were repeated. The fall in blood-sugar was only 0·05, and it took place more slowly. The diet consisted of vegetables, protein, and fat. The calorie value was approximately 25 per kilo, and the protein 1 g. per kilo. After the fast the diet was gradually increased up to this level, which was reached on the fourth day.

FIG. 4.



CASE 5.—Sugar (upper two curves) and ketones as acetone (lower two curves) in blood, after 10 units insulin.

Our first thought was that the variable response to insulin might be associated with the ketosis. It was possible that when the ketosis was marked at the beginning of treatment, the effect of insulin might be greater than later on when it had practically disappeared. Certainly in Case 1 there was a marked difference between the ketosis on the first and second days of insulin treatment, for on the first day 26 g. of ketones were excreted, and on the second day only 3·9 g. This view was tested in Case 5 (see Fig. 4) and found not to be correct. On June 11th 10 units of insulin, given just before the mid-day meal, caused a fall of 0·06 per cent. in the blood-sugar, when the blood contained 0·05 per cent. ketones, while on June 18th the same dose of insulin caused a fall of 0·056, which was practically the same as before, while on this occasion the blood only contained 0·0024 per cent. ketones. The diet of the patient was constant and contained carbohydrate, only in the form of vegetables and cream.

Another explanation of the apparent diminution in the effect of insulin is to be sought in the state of nutrition of the individual. In Case 3, when insulin was first given, the patient had not long before completed a period of three days' fasting, while in April, a month later, when the 10 units of insulin were given, the patient's nutrition had greatly improved, since he had gained 9 lb. in weight. We have already in this paper provided some evidence, which agrees with the work of others, that one action of insulin is to facilitate the storage of dextrose in the tissues in some form. This storage would more readily take place if the tissues had been depleted of dextrose by previous fasting. Further, as the nutrition of the patient improved, the depôts for the storage of carbohydrate in the tissues would be filled up, so that there would not be the same tendency for dextrose to be absorbed out of the blood-stream by the action of insulin.

It might, of course, be argued that the patient had become definitely worse under our treatment—i.e., that he had lost tolerance for sugar so that insulin became less effective; but against this view was the result of a single day's fast in Case 1, since a greatly increased fall in the blood-sugar was observed with 20 units of insulin on the following day. It is more likely that the carbohydrate depôts became temporarily less full, so that the insulin was more effective. We must at present regard it as rather an open question whether by keeping the depôts more or less empty by constant under-feeding, any curative action of insulin is possible in severe cases of diabetes, as Graham and Harris [13] have suggested.* The calorie value of the diet of our patients was not high considering that they were walking about. They always said they felt hungry, and it would have meant a great deprivation if we had diminished the amount of food still more, so as to prevent their gaining weight, though we might have increased the effectiveness of the insulin by this means. As it was, in Case 1 we increased the amount of insulin instead of reducing the amount of food.

Methods of Administration of Insulin.

We have tried the effect of modifying the administration of insulin. In addition to the results detailed below, we obtained a little evidence that absorption may take place after injection into the maxillary antrum in Case 1. Mr. T. B. Layton kindly carried out this operation for us under local anæsthesia. It is also possible that some absorption occurred after administration by means of a duodenal tube in Case 1. The tube was located by means of X rays.

Administration by Mouth.—It has been suggested that destruction of insulin in the stomach by pepsin might be avoided by giving alkali. Consequently the following procedure was adopted. One drachm of sodium bicarbonate in 5 oz. of water were first given to Case 1, then the usual dose of 25 units of insulin with 1 drachm of sodium bicarbonate in 5 oz. of water, and in five minutes' time ½ a drachm of sodium bicarbonate in 3 oz. of water. The blood-sugar beforehand was 0·19 per cent. (see Table III.); three hours later 0·23; and five hours later 0·25. A control experiment was carried out by observing the blood-sugar at the same hour of the day when no insulin had been administered by any route. The blood-sugar rose steadily from 0·13 to 0·19 after five hours, which was just the same rise as was observed when the insulin was given by mouth.

Administration by Rectum.—The following case presents an example of the effect of rectal administration.

CASE 9.—Male, aged 30, was admitted under one of us in December, 1920, in a semi-comatose state.[4] The urine became sugar-free and the ketosis had practically disappeared on discharge. He was readmitted under Dr. Beddard in April, 1922, passing sugar (blood-sugar 0·4 per cent.), but became sugar-free with dietetic treatment. The effect of rectal and subcutaneous administration was tried just before his dinner, which consisted of vegetables, protein, and fat, but which also contained 1½ oz. bread (see Table III.). On May 3rd, after subcutaneous injection, the blood-sugar remained about the same, the effect of the insulin being neutralised by the bread. On the 23rd bread was given without insulin and the blood-sugar rose from 0·16 to 0·255 in three hours, but no sugar was excreted; while on the 8th when insulin was given per rectum before a similar meal containing bread, the blood-sugar rose from 0·21 to 0·31, which was practically the same rise as when no insulin was given at all. The urine on the latter occasion contained 0·8 per cent. of sugar. Hence it appears that insulin produced no effect when administered per rectum in this case.

Administration of Gum-insulin.—An attempt to reduce the number of injections per day was made by giving the insulin in a vehicle which was only slowly absorbed by the tissues. We made a solution of insulin in a 20 per cent. solution of gum-arabic for the purpose.

(1) By such means a rabbit was given three times the dose of insulin usually required to send it into convulsions. The rabbit did not go into convulsions,

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* Since the above was written we have heard of three patients who have noticed reactions with doses of insulin that had previously not produced any reaction, and in certain other cases the blood-sugar tolerance curve has been found to improve after a course of insulin of about a month's duration. All these patients were taking a diet that satisfied them, though it contained no carbohydrate other than that in the form of green vegetables.

but about seven hours' later was not quite normal. It recovered and was quite normal next day. The blood-sugar before insulin was 0·13 per cent., and fell to 0·065 per cent. after three hours. On two previous occasions the blood-sugar fell to 0·045 and 0·05, when about one-third the present dose was given without gum.

(2) Case 6 had symptoms of hypoglycæmia when 30 units of insulin were given daily in three injections of 10 units each. She was given 30 units in 20 per cent. gum before her breakfast. She had only slight symptoms of hypoglycæmia three hours later, and these lasted two hours, when her blood-sugar was found to be 0·08 per cent. Twelve hours later she had an attack of urticaria, but there was no local reaction at the site of injection.

These results show a distinct slowing of the rate of absorption of insulin due to the gum.

Respiratory Exchange.

Banting and his colleagues[2] found that the respiratory quotient (R.Q.) in depancreatised dogs rose after sugar and insulin, while the glycogen in the liver was increased. Kellaway and Hughes[9] found in the case of a normal subject, who had fasted for 15 hours, that after insulin there was a rise in the R.Q., with increased output of CO_2. The oxygen intake was once slightly diminished, and in a second experiment slightly increased. Dudley, Laidlaw, Trevan, and Boock[14] found that normal animals under the influence of insulin showed a transient rise in R.Q., but the O_2 intake and the CO_2 output fell continuously, and at the end the liver contained less glycogen than normal. Meakins and his colleagues[3] found that the R.Q. rose to some extent after glycogen and insulin, though the oxygen intake, as judged by the calorie values given, probably fell.

Case 1 seemed to us to be a specially suitable case for studying the respiratory exchange owing to the very large amounts of insulin he was having. Douglas and Haldane's closed circuit apparatus[15] was used, the expired air being analysed for its CO_2 content as suggested by Krogh.[16] The pulmonary ventilation was recorded by placing the rubber balloon in a jar and connecting the latter with a Krogh's recording spirometer. The volume of CO_2 expired was calculated from the CO_2 in the expired air and the pulmonary ventilation.

The first three observations (see Table IV.) were carried out when the patient was having 75 units of insulin a day in equal doses at 6 A.M., 12 noon, and 6 P.M. The patient had his usual breakfast consisting of two eggs, 2 oz. of bacon, 1 oz. cream, and cooked greens at 6.30 A.M. He rested on a couch in the respiration room for about three-quarters of an hour before the experiment. The first and second experiments were carried out at 9.30 A.M., three and a half hours after the insulin had been administered, and the third at 12 noon, six hours after the insulin. In the third experiment the patient had had his lunch, consisting of 2 oz. cheese, two bran and agar cakes, and 1 oz. butter at 9.30 A.M. Very high respiratory quotients, over unity, were obtained in the first two experiments, while the value in the second was 0·98. At this stage we do not wish to lay any stress on our finding, that the R.Q.'s were actually above unity, but only that they were uniformly high. The blood-sugar varied from 0·155 per cent. four hours after the insulin to 0·20 per cent. five hours afterwards.

The last three experiments were carried out under similar conditions, with the exception that the last dose of insulin had been taken 23½ hours before the first experiment. The results offer a great contrast to the first three experiments, the R.Q. varying from 0·84 to 0·86. The CO_2 output was approximately the same, while the O_2 intake was considerably greater. The blood-sugar was 0·32 on July 10th and 0·26 on July 11th. Immediately after the completion of the experiments insulin was recommenced, and on July 12th, at 10.50 A.M., the blood-sugar had fallen to 0·155.

It is possible that there is a difference between the action of insulin in normal and diabetic organisms, but we think that in the latter insulin certainly causes a rise of R.Q. and a diminution in the intake of oxygen.

Dale[11] has suggested a very simple explanation of these facts—viz., that with insulin carbohydrate is oxidised in place of other foodstuffs. This seems a satisfactory hypothesis, but it cannot be the whole truth, as we have already shown that some sugar may be stored for a while. The problem is—in what form is it stored? Kellaway and Hughes[9] suggested some fat complex, because the high R.Q. was associated with a diminished oxygen intake, and if our R.Q.'s above unity are substantiated, there would seem to be no other possible explanation. But for the present we would suggest that the storage takes place chiefly as glycogen, and we would explain the low oxygen intake with insulin on the lines of Dale's hypothesis as follows: After stopping insulin in our case the oxidation of protein and fat takes the place of carbohydrate; but the specific dynamic action of these substances is greater than that of carbohydrate, and so the oxygen intake is increased. When our respiratory experiments with insulin were being carried out, it is unlikely that storage of glycogen was occurring, as the patient had been under treatment so long that all the depôts would be full. However, when the insulin was stopped, the converse process probably took place, and the hyperglycæmia arose partly from the escape of dextrose from the depôts and partly from the food.

In conclusion, we should like to thank the Medical Research Council and the Parsons Research Fund for financial assistance and for providing pancreas when we were ourselves preparing insulin. We should also like to thank various members of the staff of Guy's Hospital for facilities for investigating cases under their care, and the nursing staff for their willing coöperation.

Summary.

1. The treatment over a period of 108 days of a severe case of diabetes, requiring 75 units of insulin a day, is described.

2. Figures are given illustrating the effect of insulin in diminishing ketosis in diabetes and diabetic coma.

3. Insulin had no effect when given by mouth mixed with sodium bicarbonate or by rectum. When mixed with gum and injected subcutaneously, the absorption was a little delayed and a larger dose was tolerated.

4. Evidence, arising out of the administration of a very large dose of insulin, showed that it causes storage of carbohydrate in some form. When the depôts are full, insulin does not have such a big effect in lowering the blood-sugar. The marked rise in R.Q. with insulin is explained on Dale's hypothesis that insulin also causes carbohydrate to be burned in preference to other foodstuffs, and the fall in oxygen intake is explained by the low specific dynamic action of carbohydrate.

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THE SILHOUETTE RADIOGRAM.

BY A. P. BERTWISTLE, M.B., CH.B. LEEDS,
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IN a recent paper entitled "X Ray Prints: A Suggestion,"[1] I endeavoured to show that a display of the outline of the soft parts in X ray prints would not only enhance their instructional value, but would form a more complete clinical record. After trying various methods with this object in view, I have found the following simple process eminently satisfactory. I scratch the X ray negative with a pin, carefully following the skin outline. I then make a print (Fig. 2) and block out the background with Indian ink. Most negatives show a well-defined skin outline.

1

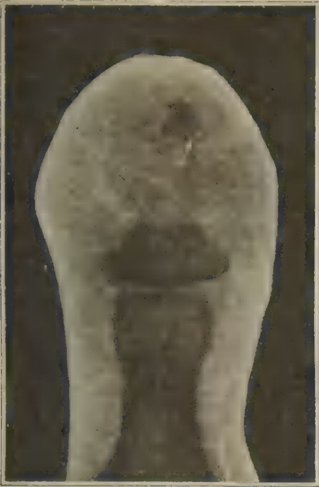

FIG. 1.—Caries of thumb. Note (1) Bone: disorganisation of distal part of terminal phalanx, with abscess cavity in which is sequestrum; and (2) Skin: bulbous end, the result of periosteal whitlow.

2

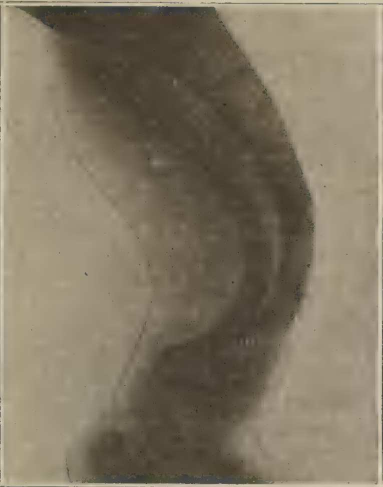

FIG. 2.—Rickets, showing characteristic contour and acompanying bony lesion. (Stage 1 of method.)

3

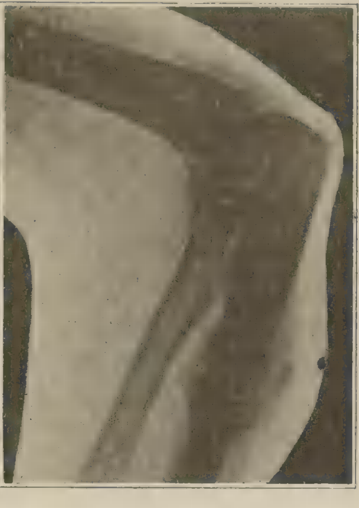

FIG. 3.—Callus of ulna.

4

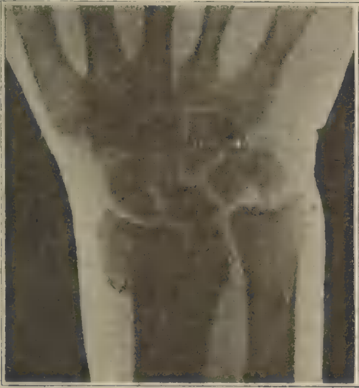

FIG. 4.—Colles' fracture. Note (1) Bone: impaction of radius so that styloids of radius and ulna are on the same level: and (2) Skin: radial deviation.

5

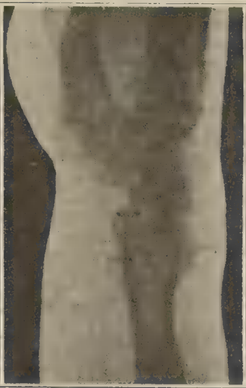

FIG. 5.—Normal wrist-joint.

6

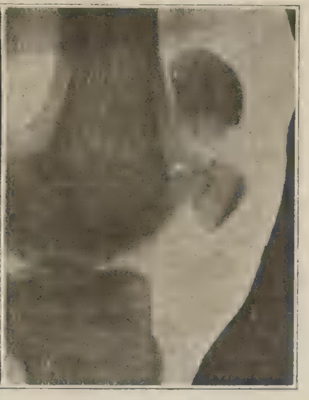

FIG. 6.—Fracture of patella. Note (1) Bone: transverse fracture due to muscular effort, and upward tilting of lower fragment: (2) Skin: swelling of joint and depression over site of fracture.

I have further applied this idea to demonstrate the congenital absence of muscles,[2] muscular wasting, the result of bony disease, as in a tuberculous knee, and the relationship of external sinuses to surrounding tissues, the sinus being previously injected with bismuth. Tuberculous dactylitis, periosteal whitlow (Fig. 1), osteitis deformans and rickets (Fig. 2) all show the characteristic contour as well as the accompanying bony lesion. In the case of fractured ulna (Fig. 3) the illustration given shows the relationship of the callus to the surrounding parts, and one is able to assess to what extent the swelling is due to the bone condition, and to what degree to surrounding tissue damage.

The skin outline is instructive in cases of dislocated shoulder, where increased axillary girth (Callaway) and flattening are characteristic features. In cases of Colles' fracture the radial deviation (Fig. 4) and "dinner-fork" deformity are clearly defined. A normal wrist-joint appears in Fig. 5. In fractured patella (Fig. 6) the groove between the fragments is quite obvious.

The actual result is a silhouette skiagram, a combination which has the properties of an X ray plate and a clean cut silhouette, displaying the deformity or otherwise of the soft parts. The ordinary radiogram is largely a silhouette of bone; this is one of bone and flesh. The advantages this has over an ordinary radiogram are: (1) a more striking clinical picture, often rendering a photograph unnecessary; (2) the ease with which it may be obtained; (3) the position in which the limb is photographed is indicated; and (4) the cause of the whole deformity may be analysed at a glance.

I am indebted to Dr. H. B. Scargill and the radiological staff of the General Infirmary at Leeds for the preparation of the prints.

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[1] Brit. Jour. Surgery, January, 1923.
[2] Brit. Med. Jour., Feb. 24th, 1923.

RESULTS OF THE SCHICK METHOD

APPLIED TO A FEVER HOSPITAL STAFF.*

BY B. A. PETERS, M.D., B.C. CAMB., D.P.H.,
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DURING the last 18 months all members of the staff of the Bristol City Fever Hospital, Ham Green, have been tested by the Schick method. In half the cases the test toxin was diluted immediately before use. In the other half toxin as diluted by the makers was employed. There appeared to be no appreciable difference in the results, and the makers state that they have found no alteration in the toxic strength through material travelling by post. While many of the results are very distinctly positive or negative, a considerable number of borderland cases arise (at least in adults) in which it is very difficult to decide in which category to include them. Such cases have been called positive in our results. One series of 11 were tested simultaneously with material from different firms on the same day on the same arm. The results with the material from firm A (which was used in all the other patients) were 8 positives and 3 negatives, and with material from firm B, 5 positives and 6 negatives—an alarming disparity.

Results.

In all 212 were tested; 85, or 40 per cent., gave a positive or pseudo-positive reaction, and all these were given two or three doses of toxin antitoxin mixture. They were not allowed in the diphtheria wards until six weeks after the last dose, by which time a fair measure of immunity is stated to have developed. As a counsel of perfection they should be re-tested before contact with diphtheria, but there is a limit to these procedures beyond which it is not wise to press the forbearance of the new staff, as they are all also vaccinated, and some inoculated with T.A.B. vaccine and on occasion with *B. pestis* vaccine! Amongst those who had previous attacks of diphtheria, 18 gave a negative test (one of these had diphtheria twice) and 6 a positive test (one of these had also had two attacks within three years). Amongst the older members of the staff who had been in contact with diphtheria for periods varying from a few months to five and a half years without contracting the disease, 7 gave positive reactions varying from slight to very strong. Amongst those giving negative tests, two developed clinically follicular tonsillitis with a profuse growth of diphtheria bacilli in culture, and three developed a definite clinical attack of diphtheria, including myself, who contracted the disease after 14 years' daily contact with it, and a ward sister who had had eight years' fever nursing. The organism from my own throat killed a guinea-pig in 36 hours and was thus unusually virulent. Amongst those inoculated with toxin antitoxin mixture, two developed diphtheria while being immunised (not then being in contact with known cases of diphtheria), and one two months after completion of immunising course. Therefore 8 in all contracted diphtheria in 18 months—i.e., at the rate of 5 per annum. The numbers attacked in the previous 12 years were, from 1921 backwards: 12, 12, 6, 6, 2, 3, 2, 1, 2, 7, 6, 5—i.e., an average of 5 per annum.

During the period of these observations the incidence of scarlet fever attacks in the same patients is of interest. Out of 127 with negative Schick tests, 5, or 4 per cent., contracted scarlet fever; of the 85 positives 10, or 12 per cent., contracted scarlet fever. This suggests some relationship in the susceptibility to the two diseases and is in accord with the well-known fact that those suffering from scarlet fever are highly susceptible to diphtheria and vice versa, although the numbers are much too small to dogmatise upon. Our results here suggest that the claims for these methods are decidedly exaggerated in the presence of heavy and repeated doses of a virulent type of infection, such as was present in this area during most of the time in which these observations were made.

Conclusions.

Our experience here would suggest: (1) That a negative Schick test does not necessarily indicate clinically immunity to the disease; (2) that a positive Schick does not always indicate a high susceptibility to the disease; (3) that the effects of immunisation do not always prevent the disease. This is in accord with clinical experience, as one has frequently seen second attacks of the disease in the same person. Probably some people give a bad immunising response to infection, and one would not expect any artificial method to give a better immunity than does an actual attack of a disease. No one would claim that vaccination is a better protection against small-pox than an attack of small-pox.

These methods are undoubtedly of considerable value in protecting against the disease, but immunity against any disease can never be absolute, as it must depend on the virulence and size of dose of the infection and the general condition of the patient at the time of infection. Presumably, amongst those exposed to slight and occasional risks of infection, the immunity conferred would be better than under the concentrated fire to which fever hospital staffs are exposed. I think that for these persons it would be better to abolish the test and give them all two or three doses of toxin antitoxin mixture. However, this has the disadvantage of sensitising them to horse serum if they should consequently develop the disease; also the reactions produced by the mixture are sometimes decidedly severe. It would be better for the success of this method that the dogmatic statements claiming its absolute protection should be combated; otherwise occasional disappointment will ensue, followed by the falling into disrepute of the whole procedure. My experience suggests that the method, while constituting a valuable weapon in the combating of diphtheria, has distinct limitations.

I am indebted to Dr. J. A. Nixon for instructing me in the technique of this test and for carrying out some of the earlier tests.

PREGNANCY COMPLICATING FIBROIDS IN A PRIMIPARA AGED FORTY-SIX YEARS.

BY A. LOUISE McILROY, M.D.,
D.SC. GLASG.

(*From the Obstetrical and Gynæcological Unit, Royal Free Hospital.*)

IT has been found that the occurrence of pregnanc in a patient the subject of fibroids of the uterus i rarely associated with any disastrous effects, excep where degenerative changes take place in the tumou substance, or where torsion of the pedicle ma accidentally happen. The general rule adopted b most gynæcologists is to refrain from operativ interference during the course of the pregnanc unless there is some urgent reason for doing s If obstruction to labour appears to be inevitab it is advisable to allow the pregnancy to continu to full term, and to deal with the fibroids aft Cæsarean section has been performed. Fibroids a seldom found to be a direct source of post-partu hæmorrhage.

Investigations into the causation of these tumou has led me to believe that they constitute one of t chain of symptoms associated with toxæmia, havin in the majority of cases its source of infection in t mouth and intestinal canal. Hæmorrhage in no pregnant cases is due not to mechanical irritation of the uterine mucosa alone, but to a congestion of the tissues under the influence of a chemical toxin. The uterus is endeavouring to eliminate the poisonous products from the intestine as it is a channel of excretion under normal conditions.

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* A paper read before the West of England Branch of the Society of Medical Officers of Health on June 20th, 1923.

If cases of fibroids are carefully investigated it will be found that there is evidence of toxæmia in the majority of them; this toxæmia is not always consequent upon degenerative changes in the tumours themselves, but rather points to some influence in their origin. The notes of the following case may be of interest owing to the problems involved in the accurate diagnosis of pregnancy and its treatment.

The patient, aged 46, married three years, sterile, had regular menstrual periods until Nov. 8th, 1922, when they ceased. Some weeks later she noticed a swelling in the right iliac region, and consulted her doctor about the middle of December. A diagnosis of fibroids of the uterus was made, and the amenorrhœa was looked upon as a symptom of the onset of the menopause. She was sent up to me for examination and treatment.

Condition on Examination.—When I saw the patient the tumour in the abdomen was easily palpable, tender, and freely movable. The uterus was involved in a mass of fibroid tumours confined mainly to the pelvic area. As there was some softening of a portion of the swelling I hesitated to exclude the possibility of pregnancy, although there were no breast changes present. There was a history of slight sickness, but as the patient showed some evidence of toxæmia it could not be taken as a reliable sign of pregnancy.

I wrote to the doctor explaining my difficulty of diagnosis and asking him to let me see the patient in a few weeks' time. She was admitted to the gynæcological department on Feb. 12th and again examined. The tumour was found to be larger and more tender, and the pelvic mass was also enlarged. There was slight secretion in the left breast, but no definite areola seen. Under anæsthesia a portion of the pelvic mass felt softened like a pregnant uterus, although it was still somewhat difficult to make an accurate diagnosis. The patient complained of pain in the large tumour, and showed evidence of the presence of toxæmia. For this reason I decided to operate, but did not promise to do a hysterectomy, although the patient was anxious not to continue the pregnancy owing to its possible complications.

Operation.—On Feb. 20th the large tumour was easily removed, being pedunculated; it was found to be undergoing necrobiotic degeneration on subsequent incision. The uterus was enlarged and softened to about the size of 12 weeks' pregnancy, and its walls were studded with about a dozen fibroids of varying sizes. Two of the largest of these felt softened and were dissected out from the uterine wall. Although there was considerable hæmorrhage on enucleation of the tumours, and although the uterus was so much involved, I decided to leave the condition alone. The pelvis showed considerable contraction in its antero-posterior diameter.

Course of Case.—There was no interruption of the pregnancy after the operation, and the patient left the hospital well on the twenty-second day. Owing to the patient's age, to the degree of pelvic contraction, and to her now expressed desire to go to full term, she was advised to return for Cæsarean section. Her general condition throughout the remainder of the pregnancy was very much improved. On August 7th she was admitted to the obstetrical department, and next day I performed Cæsarean section before the onset of labour. The placenta was situated on the anterior uterine wall, and there was considerable hæmorrhage from the incision, but the operation was otherwise uncomplicated. Another tumour was excised, but the uterus was not removed as it was thought possible that the tumours would involute. The child was perfectly healthy and weighed 7 lb. 2 oz. at birth. The patient left hospital well on Sept. 3rd, the uterus on examination showing a marked diminution in the size of the tumours.

The interest of the case lies in the occurrence of pregnancy in an elderly primipara with numerous fibroids, and the difficulty of a definite diagnosis in the early weeks. Cæsarean section was indicated on account of the contracted pelvis and the possibility of injury to or obstruction by the tumours in the course of labour, together with the facility for hysterectomy if deemed necessary. The case is one more example of the beneficial results of conservative obstetrics even in the presence of several indications for more radical measures.

Clinical and Laboratory Notes.

A NOTE ON JAW-WINKING.

By J. ALEXANDER WILSON, M.D. GLASG.

JAW-WINKING is the inelegant term applied to involuntary movements of one or both eyelids that are occasionally associated with movements of the jaw, as in chewing, speaking, or crying. The ætiology of the condition is obscure. Sometimes it is congenital, when it has been called an "atavistic anomaly." Another theory assumes that the "levator palpebrarum, ordinarily supplied by the third nerve, receives in these cases an additional supply from the fifth nerve, which also innervates the muscles of mastication." It is frequently associated with ptosis, or there may be ptosis in one eye and jaw-winking movements in the other.

I have observed a child, obviously a case of ptosis, who was admitted to hospital for operation, crying vigorously whilst it was being prepared for operation. As it cried I observed that the ptosis had disappeared; the lid was drawn right up, exposing the white sclerotic above the cornea. When the child ceased to cry the lid drooped again. Here we have a condition of paralysis alternating with extreme contraction. One case was reported to have followed injury to the child's head—"skull dented in"—and another as being associated with "paresis of the left side of face and body."

The following case is worthy of record:—

The patient is a man aged 50. When he is not speaking or eating his eyes seem exactly alike. The vision in each is good. When he speaks the right upper eyelid falls and covers the eyeball, and when he stops speaking the eyelid is raised into its normal position. When he speaks suddenly or energetically the fall of the lid seems of greater range and is more obvious. When he speaks quietly or languidly the range of movement is less and the abnormality is less obvious. The lid also droops when he eats.

This is an ordinary case of jaw-winking, but the interesting point is its ætiology. Twenty years ago this man was in a railway collision and suffered from shock which kept him in bed for several weeks. He had no obvious injury. Shortly thereafter he noticed this peculiarity of his right eye. He is an intelligent business man, and I have no hesitation in accepting his statement that the collision was in some way responsible for the disordered muscle activity. If this ætiology is accepted the case is interesting from a medico-legal point of view.

In all cases of jaw-winking a voluntary impulse from the cortex cerebri to the fifth nerve initiates an involuntary impulse in a section of the third nerve. In my case, probably, there has been a lesion or displacement of an upper neuron, permitting shunting, or escape of impulse, from the line of the fifth nerve, on to that of the third nerve.

Cambuslang, Glasgow.

A CASE OF
DIPHTHERIA OF THE BIG TOE.

By E. EMRYS-ROBERTS, M.D.,

PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, WELSH NATIONAL SCHOOL OF MEDICINE.

THE following case-record presents certain points of interest in diagnosis and treatment:—

The patient, a youth aged 22, who enjoyed excellent health, developed a blister at the base of the right big toe after a game of football. When the blister burst the site became ulcerated, and this was quickly followed by swelling of the foot and enlargement of the femoral lymphatic glands. He felt out of sorts and "shivery." In spite of vigorous local treatment the foot remained swollen and the ulcerated area unreduced in size for the succeeding five weeks. Towards the end of this period he began to feel giddy and to suffer from double vision and inability to read. He also about this time began to experience trembling and weakness at the knees, some difficulty in walking, and numbness in hands and feet.

Condition on Examination.—Eight weeks after the receipt of the injury the swelling of the right foot had gone down, but there was present an indolent ulcer on the anterior and outer side of the base of the right hallux, forming a sort of half-collar about one-third of an inch in width, with a slight colourless discharge. Complete analgesia existed over the soles of both feet and over the lower half of each leg posteriorly. There was definite weakness of extension and flexion, especially the latter, at the knee-joints, but no paresis of the muscles operating at the ankle-joints or toes. The right grip was weak and there was some wasting of the muscles of the hand. Definite, but incomplete, analgesia was present over both hands and over the cheeks and nose. All the deep reflexes of both arms were lost, as were also the Achilles jerks. The knee-jerks were feeble and only obtained on reinforcement. Both sixth nerves were affected, and there was limitation of movement and diplopia on attempted lateral deviation of the eyes. He could not see ordinary print, but distance vision was good. The pupils reacted to light, and the discs were normal. Though speech was slightly nasal, there was no regurgitation and no difficulty in swallowing. Furthermore, there was no obvious involvement either of the myocardium or of the respiratory muscles.

Course of Case.—In the absence of any history of sore-throat the polyneuritis was considered to be definitely related to the condition present in the big toe. Both in direct smears and in cultures obtained from the ulcerated area the Klebs-Löffler bacillus was readily identified, and immediate treatment with antitoxin was followed within 48 hours by distinct amelioration of the symptoms. Although the wound was, additionally, heavily infected with *Staphylococcus aureus*, healing started at once and, in a few days, newly-formed epithelium covered the site of the ulcer. During the four months up to the time of writing the improvement has been consistently progressive and now, although there yet remains some wasting and loss of power in the right hand, the patient is practically fully restored to healthy activity. The source of infection has completely eluded detection, in spite of the efforts directed to this end by the patient's father, a medical man.

Although cases of " wound diphtheria " are reported from time to time, the occurrence of a diphtheritic lesion limited to the site of the wound and unrelated to any obvious source of infection is uncommon. Nevertheless, the possibility of this form of diphtheria is to be borne in mind whenever a wound, for no clear reason, betrays a tendency to resist all forms of local treatment, since this obstinacy was essentially, in the case here recorded„ the first indication of infection by the Klebs-Löffler bacillus.

For the history and notes I am indebted to Dr. Alfred Howell, who saw the case in consultation.

Cardiff.

Reviews and Notices of Books.

A SYSTEM OF SURGERY.

Second edition. Edited by C. C. CHOYCE, C.M.G., C.B.E., B.Sc., M.D., F.R.C.S., Director of Surgical Unit, University College Hospital Medical School, Surgeon to University College Hospital, Consulting Surgeon to the Seamen's Hospital, Greenwich. London: Cassell and Company. In three volumes. Pp. 1013, 1056, 1176. £6 the set.

THE second edition of Choyce's excellent " System of Surgery " has been long overdue, owing, as the editor explains in his preface, to the war and its subsequent disturbances. There have been certain changes throughout the course of the work, some of the chapters have been re-written by new authors, and others have been revised. The war was bound to be responsible for certain additions to this edition, but we are glad to see that only the real advances in surgical knowledge and technique have been included. Many methods of great value in war conditions are entirely out of place in civilian work, and the editor has been happy in his choice of what to leave out. Certain chapters have been entirely rewritten; X ray diagnosis now falls to Mr. Magnus Redding, and he has produced a chapter which ranks amongst the finest in the work. He has given us many admirable radiographs, and is well abreast of modern improvements and discusses ably such recent methods as pneumo-peritoneum and ventriculography. Colonel L. W. Harrison contributes an authoritative and lucid chapter on syphilis. Colonel J. W. West has rewritten the chapter on tetanus. In view of the amount of material provided by the late war his article is disappointing. The typical form of tetanus is well described, but its unusual forms are only very briefly dismissed. The chapter on the pharynx, larynx, and ear is rewritten by Mr. Norman Patterson, and gives a description of the diseases of these regions which a general surgeon will find of value. Orthopædic surgery has been taken over by Mr. W. H. Trethowan, and he has effected a great improvement in one of the weaker chapters of the first edition.

There are noticeable changes in arrangement, and the chapter on military surgery is rightly abandoned, for, as the editor points out, military surgery is a branch of its own and requires its own literature. There are two entirely new chapters, one by Prof. C. A. Pannett on simple ulcers, and another by Mr. E. K. Martin on toxæmia, septicæmia, and pyæmia. Mr. W. H. Clayton-Greene adds to his admirable chapter on diseases of the tongue his experiences of the use of diathermy in carcinomata of the mouth and tongue; Mr. C. A. R. Nitch has given an excellent account of gas gangrene; in addition there are added to appropriate chapters descriptions of methods of blood transfusion, the paraffin dressing of burns, the surgical types of splenomegaly, and a fuller discussion of arteriovenous aneurysms,

In places there are but few alterations, and sometimes too few. For instance, in the chapter on the intestines not quite a page is given to diverticulitis under the heading Diverticula of the Colon; later (p. 527) a section on fibromatosis of the colon occurs and is described as a clinical entity, which is said to produce a condition of false diverticula, whereas we now know that chronic diverticulitis is the cause of the fibromatosis. It is impossible to obtain an equal level throughout such a work as this. Overlapping must always occur, and it is not uncommon to find that in the desire to avoid it certain subjects are treated most cursorily; in this book, for example, subphrenic abscess is scurvily treated. Two varieties are mentioned in the chapter on diseases of the stomach as being complications of perforated ulcers. Later on in another chapter the subject is again introduced, but no attempt whatsoever is made to present it as a whole in a lucid fashion, and since Barnard's classification this is hardly excusable.

These, however, are but blemishes, and this " System of Surgery " remains, in our opinion, one of the best text-books of surgery in this country. It is very well printed in large clear type, the illustrations are numerous and excellent, the greater proportion of the microscopic preparations are drawn, not photographed, and the book is well arranged throughout. It covers a wide field, for it appears to be the work of choice among students for the Conjoint Board examination as well as for the Final Fellowship, and indeed may safely be used as a book of reference for any member of the profession settled in surgical or general practice. There are certain articles which in themselves mak the work worth buying. Mr. Wilfred Trotter' chapter on the scalp, skull, and brain contains th most brilliant exposition of intracranial injuries i the English language; not only is his subject matte excellent, but his article is written in such delightfu style that it is a constantly recurring pleasure t read it through. Mr. J. Sherren has supplied tw fine articles, one in Vol. II. on the stomach an duodenum, and the other in Vol. III. on th surgery of nerves, subjects which he has made ver particularly his own. That this second edition wil have a wide welcome we have no doubt.

ASTHMA.

By FRANK COKE, F.R.C.S. Bristol: John Wrigh and Sons, Ltd. 1923. Pp. 260. 15*s.*

To write a book on asthma at the present time is a unenviable task. The prominence rightly given recent years to " sensitisation to foreign proteins, as a factor in the ætiology of asthma, makes it fairly clear what must be the main theme of any work on asthma. However, when we try to go a little deeper into this subject, we are at once involved in uncertainty and controversy.

Mr. Coke speaks somewhat dogmatically on the specificity of hypersensitiveness to particular proteins and compares the results to anaphylaxis; unfortunately, he makes no mention of Storm van Leeuwen's recent work, which suggests that the specificity is by no means so great as is generally believed, and that the vast majority of hypersensitive patients give a marked cutaneous reaction to human dandruff. This divergence of views on a fundamental point illustrates the difficulty of the subject. Undoubtedly the clinical part of the book is far the most satisfactory, for here the author is describing his own experiences. There is an excellent coloured illustration showing types of skin reaction and the technique employed by the author is clearly described. Out of 350 cases of asthma he finds a positive reaction in 52 per cent. This is about the same proportion as that found by Chandler Walker, but is much higher than most people in this country are inclined to admit. The prevention and treatment of asthma is very fully considered, both during the acute attack and in the intervals between them. This takes up rather more than a third of the book. The account is sensible and impartial, and the classification is good. There are one or two small points that may be mentioned. The value of oxygen when given in sufficient quantity by means of an efficient apparatus is not sufficiently emphasised, and we have looked in vain for some reference to the old experiments on treatment with compressed air. No mention is made of tuberculin in the section on non-specific protein therapy, though valuable results have been obtained in cases where there was no evidence of tubercle. The author himself believes firmly in the mixed coliform vaccines of Danysz. The account of the structure of the lung given on p. 71 is not now generally accepted—the truer picture being that which we owe to Miller (*Jour. Morphol.*, xxiv., 449, 1913). The problem of sensitisation to drugs is mentioned. From the theoretical point of view this subject is of great importance, since people may be hypersensitive to substances other than proteins. The hæmoclasic crisis is also described. The references at the end of the chapters show that the author has read widely.

Mr. Coke has given us an interesting and readable book. We note that, but for his untimely death, Dr. A. Latham would have collaborated in the work, and the author hopes that the book will add its small quota in the perpetuation of his memory.

DISEASES OF THE BREAST.

By WILLMOTT H. EVANS, M.D., B.S., B.Sc., F.R.C.S., Consulting Surgeon to the Royal Free Hospital. London: The University of London Press, Ltd. 1923. With 106 illustrations (15 coloured). Pp. 495. 27*s.* 6*d.*

IN publishing a work on the Diseases of the Breast Mr. Willmott Evans enters a field which has already been well tilled, but the success which has attended his enterprise more than justifies it. There is always room for the book which is a record of personal experience; and when, as here, it is enriched by a painstaking and critical study of the literature, its position is immediately established. Mr. Evans treats his subject systematically. The first two chapters deal with anatomy and physiology, and methods of examination. Then, following sections on abnormalities of development, atrophy, and hypertrophy, the inflammatory conditions are described in detail; while the last two-thirds of the volume are devoted to the innocent and malignant neoplasms. The book is clearly written and admirably illustrated by drawings of subjects and naked-eye specimens; microscopic pathology receives less attention. It is thoroughly practical and more space is devoted to treatment than in many text-books.

For the most part the author's views are modern and orthodox, though he differs from accepted teaching in some particulars. He is inclined to ascribe chronic interstitial mastitis to some form of autotoxæmia, and he is a believer in the parasitic theory of the origin of cancer. Again, he advises removal of the supraclavicular glands in the complete operation for carcinoma, though it is generally believed that if these glands are infected the case is practically inoperable, and where possible he dispenses with any form of drainage of the wound. But though the author holds definite views, they represent reasoned and logical opinions and not prejudices. The book is worthy of study, and will appeal to the student and the general practitioner alike.

GONORRHŒA.

By DAVID THOMSON, O.B.E., M.B., D.P.H. With contributions by DAVID LEES, D.S.O., M.D., F.R.C.S.E.; CLAUDE H. MILLS, M.R.C.S., L.R.C.P.; ROBERT THOMSON, M.B., Ch.B.; and KENNETH MACLACHLAN, M.B., Ch.B. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 519. £2 2*s.*

Dr. David Thomson, whose long and painstaking researches into the bacteriology of gonorrhœa are well known, is responsible for the large part of this book dealing with the bacteriology and immunity. He has dealt exhaustively with the subject, and while most of the matter set down has already appeared under his name in medical journals it is convenient to have the whole subject dealt with in one volume. While the bacteriological problems are mainly of interest to workers in laboratories, the clinician will profit from a clear understanding of the issues involved, and will be glad to have the pathological side of the subject fully set out. The rest of the work deals adequately with the anatomy and pathology and treatment of gonorrhœa. Among these chapters, which are all good, we would specially commend that on Infection, Incubation, and Abortive Treatment, by Dr. C. H. Mills. The matter is admirably presented and gives evidence of long experience, soundly observed and recorded. The section by Dr. Lees dealing with the clinical manifestations and practical modern treatment is concisely written and comprehensive.

The volume is well printed and produced.

LESSONS IN PATHOLOGICAL HISTOLOGY.

By GUSTAVE ROUSSY and IVAN BERTRAND. Translated from the Second French edition by JOSEPH MCFARLAND, M.D., Sc.D., Professor of Pathology and Bacteriology, University of Pennsylvania. London: Constable and Co., Ltd. 1923. Pp. 278. 16*s.*

FEW subjects are so difficult to teach and to learn as morbid histology. The morbid anatomist can demonstrate an actual lesion to his class of students with the reasonable certainty that each one of them sees what he himself sees. But in morbid histology the microscope intervenes between the teacher and the taught, and except with the simplest objects there may be the greatest difficulty in arriving at a basis of common understanding. With demonstrating eyepieces and some form of projection apparatus teaching may be rendered less laborious, but these accessories of the class-room cannot help the student in his private reading; he must still puzzle out his microscopic preparations as best he can with the aid of a text-book. In "Lessons in Pathological Histology," by Drs. Roussy and Bertrand, the subject is treated more clearly and satisfactorily than in any text-book with which we are acquainted. The book makes no pretence of being a complete treatise on morbid histology, though it is comprehensive in scope and contains a surprising amount of information. The illustrations are from drawings of microscopic preparations, and though a few of them have suffered somewhat in reproduction, they are well chosen and fulfil their purpose most admirably. In some cases a low-power view of the section is supplemented by a high-power view of one or more portions, and each drawing is labelled very completely. Each figure is accompanied by a page of text describing clearly how the sections should be studied. First the diagnosis of the organ is discussed, then that of the lesion, and the conclusions to be drawn are summed up fairly and accurately.

The general practitioner will find this book a most useful help in the interpretation of such preparations as he may have made from his cases, while to the student who reads with its aid, morbid histology should cease to be what it too often is, an incomprehensible subject in which there is neither beginning nor end. Instead of being tempted to learn a few selected slides by heart, relying on his powers of "spotting" to pull him through in times of stress, he will acquire the habit of regarding a microscopic preparation as a problem to be solved by the ordinary processes of logical reasoning, and he will collect at the same time enough actual knowledge to satisfy all his requirements.

LIFE MOVEMENTS IN PLANTS.

By Sir Jagadis Chunder Bose. Transactions of the Bose Institute. Vols. III. and IV., 1920–1921, pp. 599–902. London and Calcutta: Longmans Green and Co. 1923. 20*s.*

This volume contains a further series of investigations made in the Bose Institute in Calcutta by Sir Chunder Bose and his collaborators into the sensitivity and responses of plant tissues to stimuli. They are notable for the continued use and further elaboration of methods of measurement and record of a wonderful degree of delicacy which might well find applications in other experimental fields. The papers mostly deal with highly technical questions of plant irritability, and the last chapter gives a useful review and summary of the first five volumes of the Transactions of the Institute. There is also a paper of more general interest on methods of control of the water-hyacinth (*Eichornia*), a plant which grows so exuberantly when it gets to a new country that it has become a serious obstruction to navigation, water-supplies, &c., in India as it has in America and Australia.

CHAMBERS'S ENCYCLOPÆDIA.

A Dictionary of Universal Knowledge. New edition. Edited by David Patrick, M.A., LL.D., and William Geddie, M.A., B.Sc. London and Edinburgh: W. R. Chambers. Vol. I., 824 pp.; Vol. II., 840 pp. In ten volumes. £10.

Those of us who learned to read from the bold letters which indicate the scope of each volume of Chambers's Encyclopædia retain for this work an affection which may be said to survive succeeding editions rather than to grow with their issue. The change from the A to BEA, BEA to CATA, on the first and second volumes of the 1888 edition familiar to our childhood, to the A to BEATTY, BEAU to CATA on those of the present edition seems unnecessary and meaningless to our jealous eye, though the prominence given to the name of the gallant admiral whose brief biography ends Vol. I. may be taken as an indication of the efforts made to bring the encyclopædia up to date. It must be admitted that these efforts have been somewhat spasmodic and uneven; for example, the article on boils and that on cataract, which include notes on treatment, appear to have suffered no revision since 1888, while the reader who desires a brief account of modern biochemistry is referred back to an article on animal chemistry which cannot but disappoint him. We need not further discuss the medical articles, however, for it is not to a general encyclopædia that an expert will turn for up-to-date information on his specialty. Subjects connected with or radically altered by the war are well treated. In certain places where articles have been brought well up to date the bibliography has escaped attention. These criticisms having been made, it remains to record the pleasure with which we greet our old friend, rejuvenated, on the whole, skilfully enough. For a moderate price a man who invests in this encyclopædia provides himself with sound information on almost any subject that may interest him, while if he makes full use of cross-references, there is no limit to the knowledge he may acquire with little effort. It is these qualities of simplicity and conciseness that have characterised previous editions of this work and account for their popularity. We anticipate for this edition an even wider public.

FASTING AND UNDERNUTRITION.

By Sergius Morgulis, Professor of Biochemistry, University of Nebraska College of Medicine. New York: E. P. Dutton and Company. 1923. Pp. 407. $5.00.

The experimental study of starvation has long been a favourite method of approaching nutritional problems. In fact, as the author points out, fasting as a method of investigation has been not infrequently used without full appreciation of the phenomena of fasting. We believe that the present volume will find an important place in the literature of nutrition, because it supplies this need for a separate study of the phenomena of inanition. The author's objects have been, in the first place, to collect and classify what is known about the subject, and in the second place to consider these facts in their proper biological setting. The subject is considered from every aspect and the book is divided naturally into five parts, of which the first treats of physiological inanition, as seen in hibernation, metamorphosis, and such special cases as the breeding salmon; the second deals with the chemical, physiological, and morphological phenomena of experimental inanition, acute, partial, chronic, and intermittent; the third part is concerned with the relation between inanition and growth. An introduction and a very valuable bibliography complete this useful volume.

In order to make the book quite complete, the author has introduced chapters on water, oxygen, and vitamin starvation; these special subjects perhaps fall a little outside the proper scope of the work, especially the one on oxygen starvation, which is really superfluous. Otherwise we have nothing but commendation for the author's achievement.

ADVICE TO CONSUMPTIVES.

Recovery Record for Use in Tuberculosis. By Gerald B. Webb, M.D., and Charles T. Ryder, M.D. New York: Paul B. Hoeber, Inc. 1923. Pp. 79 and Tables. $2.00.

This is a most excellent production. No other book, with the exception of Dr. Lawrason Brown's "Rules for Recovery," has yet been published of such value to the tuberculous patient. About half the book consists of chart sheets, enough space being given to allow the patient to record his temperature, pulse, and weight continuously for two years. The very fact that provision has been made for a two-year record must bring conviction to the patient that the duration of his disease is not a matter only of months. Above and below each chart there is a philosophical or instructive quotation. Shakespeare, Ecclesiastes, Dante, Epictetus, Homer, Marshal Foch, and many other sources have been tapped, and Foch's dictum, "I involuntarily turn my back on disaster," is a suitable pendant to Trudeau's famous rule "Conquer Fate by acquiescence." The authors' advice is the product of 25 years' experience, and it is evident that they have spent these years in the study of the patient as well as of the disease. The distinction they draw between idleness and laziness is subtle but happy. "Idleness is merely doing nothing; laziness is doing nothing with contentment and gusto, and whoever achieves this will almost certainly recover." With regard to false recoveries, they quote the famous Irishman who said: "Many an over-confident patient has died cured." Several useful hints are given as to the cultivation of hobbies and avocations, and the patient is told never to stand when he can sit, nor to sit when he can lie down. Many a man has made important advances in the knowledge of his calling, of literature and of truth while confined to his bed or chair, and the authors' chief lesson is that life may be made even fuller than before if the patient adjusts himself to new conditions. "Do not forget that of all the countless remedies proposed, rest alone has stood the test of time." The quotations in support of this teaching are innumerable, and it is sufficient to refer to Trudeau's: "I know I have hurt nobody by rest, but I am quite sure I often have by allowing them to exercise." The authors recommend patients to take fresh air externally, internally, and eternally, and to the patient who worries they suggest that a definite time be set aside in which to get all the worrying done for the day. As for risk of infection, the opinion is expressed that a healthy adult incurs less risk in living with a tuberculous patient than in riding down town in an automobile. One more quotation: "There is no such school of character as tuberculosis bravely met and rightly faced" (Minor).

The reader, who has absorbed the philosophy of this both spirited and spiritual work, is well equipped to meet disaster, whether it come in the guise of tuberculosis or any other disease.

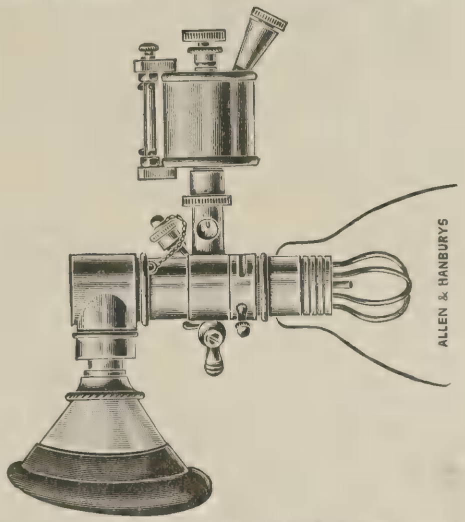
JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XX. July–September.—Dr. G. W. Ronaldson, in his Glasgow M.D. thesis entitled Serum Phenomena and Their Relationship to the Prognosis of Diphtheria, and based on the study of 1000 cases of diphtheria, points out that the prognostic importance of serum phenomena in diphtheria, which was first emphasised by J. D. Rolleston in 1904, has not received the attention it deserves. Increased dosage of diphtheria antitoxin raises the incidence of serum manifestations, but diphtheria toxin exercises an inhibitory influence both in their frequency and intensity. In very severe cases the serum rash is late in development, scanty, or entirely absent. The presence of a rash even of a most limited nature is a favourable sign, while a well-marked urticarial eruption is an excellent prognostic. The occurrence of a secondary rash which is often accompanied by pyrexia and joint pains is a still more favourable sign, a severe type of paralysis being very unusual in such cases.—In a Clinical Study of Muscle Tone in Rickets, Dr. J. Douglas Galbraith maintains that the radiographic and clinical pictures in rickets whilst showing general agreement often present marked differences. The variation of calcium metabolism under different conditions, so far as ossification can be accepted as an index of calcium metabolism, suggests that the disturbance of this metabolism may be an accompaniment of rickets rather than the primary change. Dr. Galbraith emphasises the striking loss of muscle tone in rickets and brings forward clinical evidence to show that the disease may involve the muscles as well as the bones. He regards the condition of the muscles as a truer index of improvement than the radiographic picture. Once the muscle tone has increased the child improves both in ability to walk and in general health, no matter what the radiographic appearances may be. Bad hygienic conditions, especially confinement in a moist atmosphere loaded with the products of respiration, and an absence of moving air and sunlight, depress muscle activity and thereby are strongly predisposing factors in the development of rickets.—Mr. A. Ralph Thompson describes a case of Epispadias Associated with Complete Incontinence Treated by Rectus Transplantation, in a girl aged 5 years, the principle of the operation being as follows: The right rectus muscle is divided just below or at the level of the umbilicus, split and turned downwards, the split ends being placed in a dry wound which is made around the orifice of the "urethra" in the male and around the whole vulvar orifice in the female. The distal ends of the split muscle are united to each other, so that a sort of sphincter urethræ is formed. Mr. Thompson objects to the method of transplantation of both recti on the following grounds: (1) It will prolong the operation; (2) if for any reason it should fail, transplantation of the ureters alone remains, whereas if the transplantation of a single rectus should fail, the other one may be brought down before ureteric transplantation is employed.—Dr. Angelica Panayotatou, of Alexandria, gives an account of Twenty-five Cases of Whooping-cough Treated by Injections of Ether. All the cases were cured in 12–15 days from the beginning of treatment by intramuscular injections of ether in doses of 2 c.cm. every second day. The rapid recovery was all the more remarkable as the patients were poor working-class children of feeble constitution and poor organic resistance.—The abstracts from current literature are devoted to tuberculosis.

New Inventions.

A CLOSED DROP ETHER INHALER.

THE drawback to the closed ether inhalers on the market is that it is very difficult or impossible to avoid giving too much ether, especially if one attempts to maintain anæsthesia with them. I have designed an apparatus, shown in the illustration, which is a modification of the one described by Dr. Paluel J. Flagg. It possesses the following advantages: 1. The apparatus is light and can be used with the patient's head in any position. 2. The ether container holds just over three ounces, which is sufficient for an hour or an hour and a half's anæsthesia including induction, depending on the type of patient. 3. The level of ether in the container, which is made of metal, can easily be read from a protected glass gauge. 4. The ether drops on to a spiral roll of silver-plated fine copper gauze; as it drops it can be seen falling behind a glass window. The rate at which the ether drops is controlled by a thumb-screw on the top of the container. 5. The spiral roll of silver-plated copper gauze is rolled in the long axis of the tube connecting the mouth-piece to the bag and in no way impedes the free passage of the patient's respirations. 6. The tube connecting the mask to the bag is of wide bore, thus permitting perfectly free breathing. 7. Just in front of the gauze roll is the entrance pipe for gas or oxygen as desired, so that the patient gets the gas without it having to pass over the gauze. 8. Also in front of the gauze is the entrance to the pipe leading into the bag through which ethyl chloride may be injected. 9. Between the gauze and the bag is a valve opening into the air, which valve may be opened to a greater or less extent as desired, so preventing the CO_2 concentration in the bag rising too high. This valve being on the under side allows

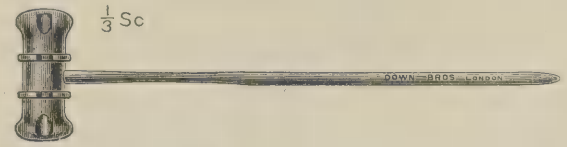


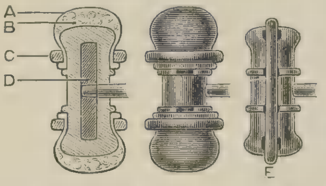
moisture and excess of ether, should it occur, to escape. 10. The bag is very easily removed for rinsing purposes, has a wide neck, and is of one gallon size. I would strongly recommend that anyone using the apparatus should be thoroughly familiar with the closed ether technique.

The apparatus is made by Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W. 1.

F. P. de Caux, L.R.C.P. Lond., M.R.C.S.

THE "UNIVERSAL" PERCUSSION HAMMER.





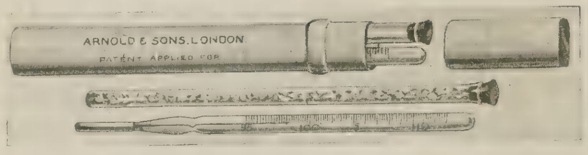
A, Rubber cap. B, Cotton-wool. C, Rubber ring. D, Metal core. E, Larger rubber ring.

The illustration shows a percussion hammer which is capable of several adjustments, thus enabling it to be employed for a number of different purposes in the clinical examination of the lungs, heart, and nervous system. It is claimed that it can be used in ordinary percussion instead of the finger or rigid plessor. By means of rubber caps and rings, the striking surface can be changed from a hard to a softer, slightly yielding form, more closely simulating the finger. The handle is flexible and thus enables the force of the percussion to be varied easily and the blow made to be short and rapid rather than sustained. It can also be used in the testing of reflexes, and here again the adjustable character of the part used for striking is an advantage—e.g., when one extremity is padded, it may be conveniently used to elicit the jaw reflex, the wrist- and elbow-jerks. The free extremity of the handle is pointed and rounded, thus permitting it to be used in testing the plantar and the superficial reflexes. A further use to which this instrument may be applied is in testing for thermo-anæsthesia, since pledgets of cotton-wool, wetted with hot and cold water respectively, may be placed under the rubber caps at the ends of the hammer and thus applied to the skin.

We have tested this instrument and found that it is useful for the purposes mentioned and that it justifies the claims put forward for it. It is supplied in a small neat case by Messrs. Down Bros., Ltd., 21 and 23, St. Thomas's-street, London, S.E. 1.

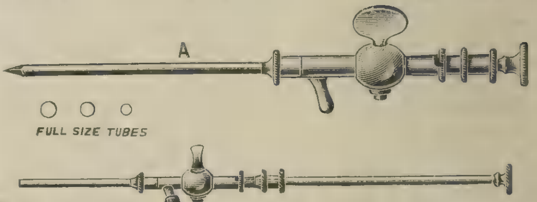
ASEPTIC CLINICAL THERMOMETER CASE.

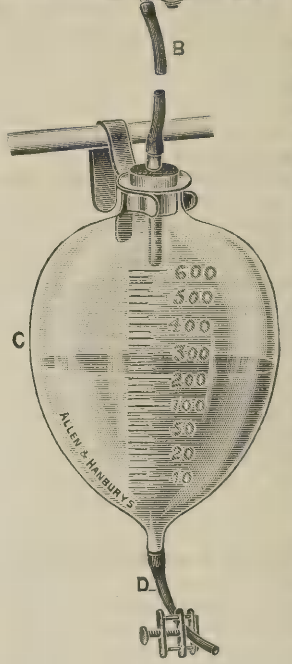
The illustration shows an improved thermometer case which I have had in use for nearly 12 months, and which I find acts perfectly. Clinical thermometer cases are known which are adapted to contain disinfectants; my object is to avoid the repeated use of the same disinfectant while at the same time facilitating the carriage of a disinfectant with the thermometer case, so that it is always ready to hand. The thermometer case shown has two compartments, one for the thermometer, the other being fitted with a glass tube in which permanganate of potash crystals or any other suitable solid disinfectant may be carried; this tube has a small hole at the lower end. When required the tube is removed and a few crystals of disinfectant are shaken into a glass of water to form a solution in which the thermometer is immersed. This allows the thermometer to be disinfected by the bedside of the patient.



The makers are Messrs. Arnold and Sons, 50–52, Wigmore-street, W. 1. Charles Pentland, M.D.

AN IMPROVED ASPIRATOR.





The aspirator here illustrated consists of a Potain trocar and cannula, A (made in three sizes), and a bottle, C. The top opening in the bottle is fitted with a rubber cork perforated by a glass tube, which is connected with the needle by a rubber tube, B. The bottom opening is fitted with a rubber tube, D, which can be clamped. To use the apparatus, the tube D is clamped and the bottle partially filled with water. The cork is put on and the bottle hung at the side of the bed. The needle is then put into the pleural cavity, the trocar withdrawn beyond the stopcock, which is then turned off. The tube D is then unclamped and the water running out of the bottle produces a suction which draws the liquid from the pleural cavity. The trocar can be detached from the needle beyond the stopcock and if this is done a specimen of the effusion can be obtained for analysis. The chief advantages claimed for the apparatus are: 1. It is simple and inexpensive. 2. The physician does not have to occupy himself with pumps, &c. When once started it works itself, and it is quite easy to do a gas replacement single-handed. 3. The flow of the liquid is even. During a gas replacement it is possible to keep the intrapleural pressure absolutely constant throughout.

The apparatus can be obtained from Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, W. 1.

L. S. T. Burrell, M.D., M.R.C.P.

A NEW INHALER FOR OBSTETRIC WORK.

Dr. P. A. Mansfield, of Sevenoaks, calls our attention to an apparatus which he has been using for the last three years and for which he claims that the maximum effect is obtained from the minimum dose of chloroform. It consists of a face-piece with an expiratory valve and an air port for safety during deep breathing. The construction of the chloroform bottle is such that the inspiratory effort of the patient sucks air through the chloroform. The two pieces of the apparatus are joined together by flexible rubber tubing.

THE LANCET.

LONDON: SATURDAY, OCTOBER 6, 1923.

OURSELVES.

With this issue we enter our 101st year, and the occasion has been taken to give a sketch of the history of The Lancet, from which, it is hoped, an estimate may be made of the aims which have been before the paper since its foundation, and the degree of accomplishment attained to. We record now our deep gratitude to those who have permitted us to publish their congratulatory messages; it is our earnest hope that future work will in some proportion justify our pride in such testimony.

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BIOCHEMISTRY AND MEDICINE.

Perhaps no subject has advanced so rapidly during the last 10 years as biochemistry. It was formerly regarded by the clinician as an academic subject, interesting to the physiologist and pathologist, but quite outside the range of practical medicine. Scarcely any English hospital possessed a separate department for the chemical investigation of its patients, while the chemical investigations made were performed in side rooms attached to the wards or else in some small room or unused corner of the pathological department. The examinations were restricted almost entirely to urine, and were done by the physicians themselves, their clinical clerks, or some junior member of the pathological staff who was looking forward to the time when he could give up an irksome duty. To-day the conditions have completely changed: every hospital of any size at all has a chemical pathologist, with a separate department to himself. In Canada and the United States the biochemical department of the hospital is quite as large and important as the pathological institute, and it plays just as important a part in the diagnostic and therapeutic side of medicine as the X ray department.

What has caused the sudden growth of biochemistry and its adoption by medicine? The pioneer work was undoubtedly done by such workers as Emil Fischer, Hammersten, and Abderhalden, but in Germany the subject was pursued more on purely chemical lines. The workers themselves were primarily organic chemists, and not medical men. America was the first to employ chemical methods as a routine in the investigation of patients, and for this work men were employed who were primarily medical, but with special chemical training. Perhaps this forms a clue to the question as to what was the stimulus resulting in the rapid growth of biochemistry in medicine. F. M. Allen's monumental work on diabetes mellitus may have been that stimulus. His investigations showed clearly the value of working out each patient's metabolism, and clinicians all over the world were quick to adopt his methods. Quantitative estimation of the urinary sugar was combined with a careful consideration of the chemical constituents and the calorie value of the patient's diet. This technique seems to have been the first to demonstrate the practical value of careful biochemical investigation in the patient's treatment. At the time of its introduction blood-sugar estimations were very difficult, and in most cases quite outside the range of practicability. Large quantities of blood were required for a single determination, and the technique was elaborate and intricate. The want of accurate and moderately simple methods of sugar analysis brought home the need for reliable systems of blood analysis: the response was soon forthcoming in the form of Prof. Otto Folin's excellent methods. Using his system it is possible to determine urea, non-protein nitrogen, uric acid, amino-acid nitrogen, sugar, creatinin, and chlorides on 10 c.cm. of blood in a very short time. The technique is so simple that an unqualified laboratory assistant in constant practice can be trained to carry out the routine analyses. Many other systems of analysis could be quoted, such as Benedict's or Meyer's, all possessing special virtues of their own.

If it is granted that diabetes mellitus formed the original stimulus for the development of medical biochemistry, it is certain that the same disease has been responsible for reinforcing its position in modern medicine. The advent of insulin therapy has clearly demonstrated the value of this subject, and it might not be going too far to state that insulin could never have been discovered without the aid of some accurate methods of micro-chemical blood analysis. After all, the value of insulin is manifest by its immediate action on the blood-sugar, the urinary changes being apparent only after some time. Without blood-sugar determinations standardisation of the preparation would be impossible. Over 10 years ago Rennie experimented with extracts made from the principal islet of certain teleostean fishes, and was able to demonstrate certain effects on the metabolism of the diabetic patient. One wonders what success he would have had if there had been some simple clinical method of estimating blood-sugar at the time. This worker's position can be realised by imagining insulin therapy without blood-sugar determinations. With urinary sugar alone available as a means of judging the result of treatment many disasters would occur. The treatment of diabetes has always been a problem to medical men, and admittedly insulin has, to a certain extent, made it a more difficult one. In the compendium of experiences on insulin medication summarised in The Lancet last week is an account of observations on 161 patients by Allen and Sherrill, who conclude, with obvious justification, that "insulin has tremendously improved diabetic treatment, but has not simplified it." The elaborate controls required in the treatment of the refractory case described by workers in the Medical Investigation Department of Guy's Hospital (see p. 777) are another example of the intricacies of the relations between diet, blood-sugar, urinary sugar, and insulin dosage. Matters proceed quite smoothly whilst the patient is in hospital, for here he can command the attention of people qualified to administer his doses of insulin and to perform the necessary analyses, but when he leaves matters are very different. His medical adviser can administer the daily dose of insulin, but what about the blood-sugar determinations? With a case that has been worked out in hospital, the practitioner's task is fairly simple, since he need only administer the dose advised as a result of this investigation, and provided that there is always a trace of sugar in the urine all will be well. The real problem is presented by the case coming to the practitioner for the first time with bad glycosuria, and refuses for one reason or another to go into hospital. Again, a case verging on coma may be encountered.

It is impossible to commence insulin therapy without a knowledge of the blood-sugar content at the outset. It has been stated that the practitioner can himself estimate the sugar in the blood, and sets of apparatus are on the market for the purpose at quite low figures. During the last six months a large number of medical practitioners have visited chemical pathologists asking for advice and tuition on the method most suited to their needs. Speaking generally, two methods are open to them: the volumetric method of MACLEAN or the colorimetric method of FOLIN. The former is cheap in the way of necessary apparatus, but requires a great deal of skill, whilst the latter is easy but expensive. A good colorimeter is an absolute essential to FOLIN's method, and this may cost anything in the region of £30. Choice falls usually on the first method, but too often, after a short period in the laboratory learning the technique, the attempt is abandoned. For the most part the busy doctor cannot give the necessary time, and therefore cannot obtain reasonable results. It is impossible to become a chemical pathologist after a few days' training. For the solution of a difficult position there are two possibilities. The first is the one adopted by the United States and Canada. There every patient undergoes a preliminary course of treatment in hospital where his dose of insulin and diet are worked out. During this time the patient is taught about his disease, how to test his own urine, and how to sterilise a syringe and to administer his insulin. When the investigations are complete, which is usually in about a fortnight, he is sent out with a supply of insulin and urine-testing outfit, and is told to report to his doctor once a month. If any sugar appears in the urine he returns to hospital at once, where a new diet is worked out for him. According to workers in those countries the scheme works admirably. The other solution is for the blood analysis to be done at some central institution, just in the same manner that Wassermann reactions are done for many doctors. Prof. FOLIN suggests that blood may be suitably preserved for sugar determinations by the addition of a little formalin. This has been tried and has been found to work splendidly. Bloods have been kept as long as 56 hours without any change in the blood-sugar being demonstrated.

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STATE CONTROL OF HOSPITALS.

ON another page our Australian correspondent summarises an important new measure for the control and coördination of hospitals in the State of Victoria. All charitable institutions, he explains, will now have to be registered; no financial appeal may now be made, and no contributions may now be received, on behalf of any unregistered foundation; in addition the State has armed itself with power to close or amalgamate hospitals and to declare the use to which they may be put. Many social developments initiated by the Governments of Overseas Dominions have ultimately been adopted by the mother country, but, with our admirable voluntary hospital system and our absence of enthusiasm for central control, it is unlikely that in this lead England will quickly follow the lead of Victoria. We in this country have never had any adequate system of registration although a hundred years ago Parliament did direct that charitable donations should be registered in order to avoid loss and encourage payment. Nor have we any control over charitable appeals, except that the police regulate street collections and except that (quite unofficially) a few journals and some societies display a certain vigilance in these matters. As for any coördination of hospitals in England or any power to close them or rearrange their objects, we can produce no example except the control exercised within strict limits by the Metropolitan Asylums Board over the various institutions which it administers. Our Ministry of Health, on its inception in 1919, was ordered by Parliament to take steps to coördinate measures conducive to the health of the people, but in the matter of hospitals the Ministry has not a clean slate upon which to write. For the history of our hospital legislation is ancient and intricate. It is interwoven in its early stages with religious foundations, maisons de dieu, and houses of correction for the poor. There are inconvenient chapters about mortmain and the doctrine of charitable uses. But if the law has sometimes disallowed bequests for philanthropic objects, it has given cast-iron support to anything in the nature of a trust. The Charity Commissioners may here and there permit the sale of a site or may encourage the making of some minor change by means of a private Act of Parliament, but, on the whole, would-be reformers and coördinators have no primrose path to tread. Countries with less history have more opportunity. Already in different parts of Canada and Australia legislatures are finding it necessary on the one hand to organise new municipal hospital districts based on public finances and, on the other hand, to regulate the conduct of private hospitals. The measures now initiated in Victoria may be adopted elsewhere within the Empire. If we cannot imitate them in this country, and if, indeed, we may not wish to do so, we shall nevertheless watch their progress with keen interest.

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THE FUTURE OF NEUROLOGY.

NEUROLOGY to-day stands in a peculiarly interesting position. No thoughtful observer can fail to be impressed with the existence of conflicting tendencies which do not make for progress; the neurologist himself is well aware of a change in outlook and scope which will have to be faced squarely if he values peace of mind. We do not know when the term "neurologist" came into vogue, nor, for that matter, can we define the limits of his specialty, but we have always supposed it concerns the totality of the problems presented by the nervous system in health and disease. The later decades of last century and the earlier years of this constituted a period of immense activity in neurological classification and description, a time when the clinico-pathological method ruled supreme, when the neurologist busied himself with numerous problems of organic nervous disease and utilised anatomical and physiological data as a basis on which to erect his knowledge of his subject. Trained in this eminently reasonable fashion, grounded on the firm foundation of anatomy, he proceeded to deal with nervous disease as it presented itself to him clinically without any uneasiness in respect of his competence to deal with every type of case. While one might be more interested in "organic" and another in "functional" clinical material, neither felt any embarrassment in handling a case of hemiplegia or of hysteria indifferently. Some of the greatest neurologists of other years—CHARCOT, WEIR MITCHELL, HUGHLINGS JACKSON—made contributions to both organic and functional neurology of surpassing interest and worth. No distinction prevailed between the "organic" and the "functional" for the simple and adequate reason that no distinction was considered to exist. In his consulting room the neurologist felt his activities did not automatically cease at the level of cerebral tumours ; he considered himself justified in administering to the mind diseased because he regarded the brain as the organ of mind, and he was familiar with the anatomy and physiology of the brain.

A change has come over neurology since the war ; a war legacy which the pre-war neurologist may be pardoned for not, perhaps, welcoming altogether without reserve. Even before that period what had been tacitly considered the neurologist's field had been steadily encroached on by bacteriologist, syphilologist, endocrinologist, and internist ; a movement, needless to say, the outcome of which has been beneficial to all concerned, for the investigations of these other specialists were conducted on clinico-pathological lines and have resulted in permanent additions to our knowledge of the nervous system. Psychiatry, too, stood to benefit by the application of similar bacteriological and other lines of research to its manifold problems. No one interested in the study of nervous and mental disease ever doubted the value of a combined approach of this description to the outstanding difficulties of his subject, just as to-day he is confident of the usefulness, nay, the indispensability, of the contribution which the biochemist can offer. The change, however, to which allusion has been made is of another kind. The study of functional nervous disease and the treatment of functional nervous cases seems to be passing to some extent into the hands of a generation of self-styled "neurologists," not a few of whom—it may be said without exaggeration and without offence—seem to act as though knowledge of the anatomy and physiology of the nervous system were immaterial, if not an actual hindrance. Satisfied, it may be, by the assurance of other investigators that no "organic signs" are present, they proceed to treat their cases by methods called "psychological," methods in which all consideration of the somatic condition of the patient is eschewed. The "clinical psychologist" of to-day finds support for his persistent attempt at an artificial separation of one variety of neurological case from another in the most recent work of Prof. William McDougall,[1] who declares that any psychology based on the assumption that man is merely a mechanical structure is unprofitable and misleading. Prof. McDougall holds that biophysical, biochemical, and physiological knowledge does not take us any distance in the direction of solving problems of regulation and adaptation, that the doctrine of localisation of function in the cerebral cortex is "rocking insecurely," and that "the only wise course for the psychologist . . . is the bold one of asserting the relative independence of his science." Almost 20 years ago the same writer published a valuable little primer [2] in which he endeavoured to show "how each of these two bodies of doctrine, the physiological and the psychological, supplements the other, deepening our insight into the processes that result in the actions of men and animals, and how the conjunction of the two kinds of research brings before us a number of problems of the deepest interest that remain hidden so long as we confine our attention to one or other of these sciences." Curious, indeed, is the impression left on the mind by the conjunction of these two citations. The student of the subject may be allowed to decide which Prof. McDougall he prefers.

For ourselves, we believe that efforts to divorce disease of the mind from disease of the nervous system are doomed to failure. From the standpoint of the clinical neurologist, we see nothing but confusion and therapeutic nihilism confronting all such attempts. Not only is it impracticable to decide where functional symptoms end and organic symptoms begin, and arbitrary to assign each category to the ministration of distinct types of specialist ; it is equally unsatisfactory to suppose that since neurophysiological knowledge is, in the opinion of Prof. McDougall, "astonishingly defective," it can throw no light on the problems of the clinician. The latter welcomes any light on his subject, from any source ; he is no more intolerant of the approach made from above by the psychologist than he is of that made from below by the physiologist ; but he objects to any doctrine which would compel him to believe that function and structure are not interrelated, that the phenomena of mental disease are not to be studied in connexion with a disordered nervous system, that the world of the psyche is a realm apart, unapproachable except by psychological methods. In his thoughtful presidential address before the American Neurological Association in 1921,[3] Dr. Sidney Schwab, of St. Louis, points out clearly the applicability of neurological ways of study to the problems of mental disorder. As a teacher, he has noted the ease with which the student examines a case of tabes and his awkwardness and embarrassment in the presence of a case of dementia præcox. That a different kind of thinking is required in one case as compared with the other is surely an unwarranted assumption. Psychological methods of investigation are as material as any employed by the neurologist. Did the student realise that, as Prof. R. J. A. Berry [4] puts it, the same type of neural machinery which serves for the simpler reflexes is also utilised, though in an immensely more involved form, for the display of emotions and of mind, he would be less conscious of hesitation, and his dilemma would disappear. Prof. Berry urges the medical man to remember the formula—no neurone, no mind. Weighty are the accumulations of objective evidence exemplifying the interrelation of the two aspects of neurological research. The neurologist brought up in the school of organic study must assimilate the knowledge of the working of the mind gained by those who have approached the subject from another angle, just as these, in their turn, ought not to remain indifferent to progress made along anatomo-physiological and other lines. Psychology, we are convinced, will suffer if it separates itself from the problems of medicine as a whole.

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[1] An Outline of Psychology. London. 1923.
[2] Physiological Psychology. London. 1905.
[3] Archives of Neurology and Psychiatry, 1921, vi., 255.
[4] The New Psychology. Melbourne. 1921.

Measurement of Progress in Public Health.—The William Farr Lecture, by Sir Arthur Newsholme, will be delivered at the London School of Economics and Political Science, Houghton-street, Aldwych, W.C., on Oct. 4th, at 5 P.M. The chair will be taken by the Minister of Health.

Condensed Milk Regulations. — Regulations were made by the Minister of Health on May 1st last providing for the manner in which any tin or other receptacle containing condensed milk is to be labelled or marked, and prescribing the minimum percentages of milk fat and milk solids in condensed milks. The date fixed for the operation of the Regulations was Oct. 1st, but as difficulties have arisen in consequence of the recent dock strike in disposing of stocks of condensed milk already in this country which do not comply with the Regulations, the Minister of Health has decided to postpone until Nov. 1st the operation of the Regulations in regard to retail sales in this country. Amending Regulations to give effect to this decision will be issued within the next few days. It is not intended to alter the date fixed for the application of the Regulations to condensed milk imported into this country—viz., Oct. 1st.

Annotations.

"Ne quid nimis."

THE PASSING OF THE PILL-ROLLING CHEMIST.

TIME was when every pill and potion was concocted on the spot by a chemist skilled in the handicraft as well as the theories of his calling. During the last decades a great and rapid change has taken place in the duties of the dispensing chemist, who is becoming more and more a salesman of ready-made drugs, and less and less of a dispenser weighing out and compounding remedies from a doctor's prescription. No doubt a good deal depends upon the class of practice, and there are still many dispensers who are kept quite busy at their proper work. Opinion may vary whether the change described is or is not for the better, but it is certainly proceeding steadily and irrevocably, and it is well to take stock of it, to see whither it is leading us, and in what ways, if any, it may be modified or diverted for the public good. This subject has lately been under discussion in the Danish medical press, and it is possible by a study of conditions in Denmark to obtain a bird's-eye view of some aspects of the problem as it presents itself in England.

The Danish regulations controlling the dispensing of drugs in chemists' shops are numerous and far-reaching. The chemist is liable to unexpected visits of inspection, and the cleanliness of his hands, the weight of his aspirin powders, and the confinement of poisons to the poison cupboard are all matters over which he may come to grief. It is one of the anomalies of the present changing state of affairs that while the small dispensing chemist is thus carefully policed, the wholesale manufacturing chemist, whether he be a native of Denmark or a foreigner, is under only lax control. His compounds may, and probably do, contain the exact quantities of the drugs indicated on his labels. It is, of course, in his own interests that his wholesale dispensing should be conducted on the most accurate and reliable lines, and it is probable that the chances of errors of dosage are smaller in his hands than in those of the retail dispensing chemist. But it is safe to venture the forecast that the time is not far distant when the wholesale manufacturing chemist will be under as close official supervision as his small competitors. From the point of view of the public's purse the change to which we have referred may be for the better. The hand-rolled pill made to order must inevitably cost more than any manufactures turned out in thousands. Recent advances in physical chemistry have greatly strengthened the hands of the manufacturing chemist, and now that such considerations as osmotic pressure, sterility and hydrogen-ion concentration of drugs for parenteral injection have come to the fore, it is inevitable that the old-time dispensing chemist should be unable to fulfil all that may be required of him. He is not, and it would be unfair to expect him to be, a bacteriologist. But, being neither a bacteriologist nor a machine capable of mass production, it is inevitable that he must sooner or later become a connecting link between the manufacturing chemist and the public.

As regards the manufacturing chemists it is evidently desirable that his products shall be under as close control and supervision as those of the small dispensing chemist whom he is displacing. Even the manufacturing chemist may, like Homer, be caught nodding, and a case has recently been reported in which a firm of manufacturing chemists with a world-wide reputation sold a preparation supposed to contain a ferment of such-and-such potency and capable of withstanding the action of the hydrochloric acid of the gastric juice. Tests showed this preparation to contain the ferment indicated on the label, but this ferment was destroyed in a few minutes by n/100 HCl. No doubt such cases are rare and probably a vanishing quantity in regard to firms of high and established reputation, which have nothing to fear and, indeed, everything to gain from the inspection which is required to keep up the standard of the laggard. The old order of dispensing is giving place to new, but let us make sure that the new order is of the best.

THE BENZOATE TEST FOR RENAL FUNCTION.

THE interest in tests devised for showing renal inefficiency has grown considerably of late years. Undoubtedly the opportunities provided by the war acted as an important stimulus for research into kidney function tests; the work of Prof. H. Maclean can be quoted as perhaps the best example of the use made of systematic examination of soldiers. Tests of renal function can be divided into three headings: Firstly those in which the partition of various substances between blood and urine is examined; secondly, those depending on the administration of some foreign substance, such as a dye, and observing how rapidly and completely the kidney excretes it; and finally, the renal function can be tested by determining the excretion of some substance native to the individual. The blood-urea test is an example of the first group, the phenolsulphonephthalein test is typical of the second group, whilst Prof. Maclean's urea-concentration test is perhaps the best known instance of the third group. The benzoate test of Swanson and Kingsbury also belongs to the last-named category. In their original paper, published in the form of a report to the Society of Biological Chemists in December of 1920, these authors called attention to the fact that hippuric acid is the only urinary constituent synthesised by the kidney. As is well known, the kidney conjugates benzoic acid with glycine and the resulting hippuric acid is excreted into the urine. That the greater part of the hippuric acid occurring normally in the urine depends on the amount of benzoic acid ingested in the food had been proved previously by other workers and was confirmed by the authors. These physiological facts suggested a new test for renal functions, and in a more recent paper[1] Dr. F. B. Kingsbury describes some of the results obtained with it. The test proper is performed on the patient as soon as he rises from his bed in the morning. The only preparation necessary is that he must be forbidden to eat fruit of any kind, since the amount of benzoic acid contained is quite enough to upset the interpretation of the test. On rising the patient empties his bladder, and immediately drinks a solution of 2·4 g. of sodium benzoate in about 100 c.cm. of water. The container is rinsed out with about 200 c.cm. of water and this is also drunk. After an hour has passed another 200 c.cm. of water is taken, making a total of 500 c.cm. of fluid in all. The bladder is emptied at the end of the second hour and also at the end of the third hour, both specimens being preserved for subsequent analysis by the addition of 10 drops of a 10 per cent. solution of thymol in chloroform, and 15 c.cm. of 2 per cent. nitric acid. The volume of each specimen is measured and an aliquot specimen is taken for analysis. The author, working with medical students, found that 82 per cent. of the ingested sodium benzoate was excreted in the two-hourly specimen and that 16 per cent. was the average for the third-hour specimen. A series of pathological cases are given by Dr. Kingsbury, and it is shown that in cases of impairment of renal function the excretion of hippuric acid under the above conditions is markedly decreased. It is also claimed that the test gives positive information in very early conditions, when other well-known tests, such as Maclean's urea-concentration test and Volhard's water-excretion test, indicate little or no impairment of the renal function. Positive results are said to be obtained in cases having normal blood analyses. It is to be noted, however, that all the cases described possessed well-marked clinical symptoms, and that none of them could be called very early cases of kidney damage. The benzoate test has apparently not yet been tried in this country; but if the claims of the authors are borne out it should become an important method of examining the kidney function.

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[1] The Benzoate Test for Renal Function, 11. Minneapolis: Archives of Internal Medicine. Vol. xxxii., No. 2.

THE BACTERIOPHAGE IN DRINKING WATER.

Certain obscure phenomena which are noted from time to time in the routine bacteriological examination of drinking waters may possibly be ultimately traced to the action of d'Herelle's bacteriophage. As an instance of this, which has now become almost classical, one may cite the experiments of Hankin, which were published in 1896, upon the bactericidal properties of certain Indian river waters. This observer noted that the water of the Jumna, just below Agra, contained over 100,000 organisms per c.cm., but that 5 km. further down the river only 90–100 organisms were present. On further investigation it was found that in test-tube experiments the filtered water exerted a marked lethal action upon the cholera vibrio, whilst after boiling no such action was present. Hankin attributed this effect to a volatile substance which he failed to isolate. D'Herelle, who has redirected attention to these experiments, considers it an undoubted example of bacteriophagic activity. The possibilities latent in these lytic substances have been recently examined, from another point of view, by Sir Alexander Houston and his colleagues.[1] One of the bugbears of the water bacteriologist is the impossibility of deciding whether typical colon bacilli, whose presence in waters is a matter of so much importance, are of human or animal origin. Since if derived from the latter they would be regarded with much more lenience than in the former case, it would be a matter of great practical utility to have a simple test which would afford such a distinction. At the Metropolitan Water Board's laboratories a comprehensive series of experiments has been undertaken to find out if such a differentiation could be obtained through the medium of the bacteriophage; it being thought that strains of human origin, and lytic for the human colon bacillus, might be discovered which would constantly lyse these organisms and be without action upon types of colon bacillus derived from animal sources. These experiments, though extremely interesting in their details and worthy of perusal on account of the information they contain as to bacteriophages in sewage, and upon certain technical points, have proved abortive, as was rather to be expected from a knowledge of the wide activities of the bacteriophage already exposed by d'Herelle. In connexion with the whole question of the activities of these widely disseminated substances in drinking waters, we also call to mind the well-known decrease in bacterial content which takes place in many waters when stored, and the oligodynamic action of certain waters. These phenomena have been attributed to electrolytic action, producing agglutination of the organisms and an apparent instead of a real diminution, and to the lethal effect of minute quantities of salts of the heavy metals. It may well be that this disappearance of bacteria is sometimes due to bacteriophagic action. Experiments of Miss Lepper[2] have shown that when added to emulsions of bacteria the initial killing by the bacteriophage is very rapid; but that after a period the rate of the process slows off, and becomes progressively slower as the limits of the experiments are reached. It would appear, therefore, that where the bacteriophage is much diluted and the organisms, relative to experimental conditions, are extremely few—a state of affairs which would obtain in stored drinking water—the great dispersion of the two active factors, bacteria and bacteriophage, could well produce the relatively slow disappearance of bacteria which is sometimes so striking an occurrence.

THE PROBLEM OF THE DIPHTHERIA CARRIER.

A rather pessimistic paper on the control of diphtheria carriers has lately been published by Dr. Max Christiansen[1] of the Blegdam Fever Hospital in Denmark. It would seem that two or three negative bacteriological reports are of little value when diphtheria patients are ready to be discharged from hospital. Among 100 such cases there were as many as 40 in which three negative examinations for diphtheria bacilli were made and in which, at a later date, these bacilli were found. Experiences such as this afford an explanation for the old observation that "return" cases are as frequent when a diphtheria patient has been discharged from hospital with a negative report, as when he has been discharged with a positive report. At the Blegdam Hospital the rule has been adopted of not transferring diphtheria patients to other hospitals until five examinations of both nose and throat have proved negative. Even so, the mesh of this net seems to be too coarse to retain every infectious case, and were it to be made fine enough for this purpose, the cost of running a fever hospital would be exorbitant. Another disconcerting observation made by Dr. Christiansen is that the aural discharge in cases of scarlatina frequently contains the diphtheria bacillus. He has observed as many as 28 such cases, in 11 of which diphtheria bacilli were also demonstrable in the nose or throat. How, in the remaining 17 cases, diphtheria bacilli came to be limited to the discharge from an ear, he is at a loss to explain; it was highly improbable that these patients were infected during their residence in hospital, for bacteriological examinations were made at the time of admission to hospital as well as later. Dr. Christiansen adumbrates the possibility of the scarlatinal infection of the throat and nose having displaced the diphtheria bacilli from these two sites, whereas it was incapable of doing so from the external ear. His demonstration of diphtheria bacilli not only among many ex-patients, but also among many school-children who had apparently never suffered from diphtheria, have led him to adopt a sceptical attitude as to the efficacy of strict and wholesale isolation except under primitive and transparent social conditions. The problem, in his opinion, is more likely to be solved by employing the Schick test for discovering susceptible persons, and by vaccinating such persons according to Behring's technique.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

It is a significant sign of the times that the whole of the October number of *Tubercle* is devoted to the surgery of the lungs and the pleural cavities. The treatment of surgical tuberculosis, it would seem, is steadily becoming more conservative, while the treatment of pulmonary tuberculosis—that hitherto jealously guarded preserve of the physician—is becoming every year more surgical. A special bibliography, published in this number of *Tubercle*, of articles on chest surgery, is remarkable for this that though it covers as short a period as 1920–23, it yet runs to almost five pages. In the first original article Mr. H. Morriston Davies traces the progress made in this direction during the last few years. He finds that the operations of extra-pleural pneumolysis and thoracoplasty are indicated only when treatment by artificial pneumothorax has been given a fair trial and has proved impracticable. As for the results of the thoracoplastic operations, estimates vary considerably according to the choice of case, the skill of the operator, the financial status of the patient, the quality of the after-treatment, and various other factors. Mr. Morriston Davies has achieved freedom from symptoms or much improvement in 50 per cent. of his cases, and his operation mortality is only 8·3 per cent. This mortality could probably be appreciably reduced by improvements in the anæsthesia adopted. This is such an important aspect of the problem that it is dealt with separately in an original article by Dr. L. W. Shelley, who discusses the choice and the method of administration of the anæsthetics most suitable for these radical operations. In a review of another paper which also deals with the problem of anæsthesia, Prof. Bull of Christiania asks: Why did eight patients die within a few days of the operation? He notes as significant the fact that the clinical picture was remarkably uniform. These post-operative fatalities did not usually overtake patients leaving the operating theatre in an exhausted state, and with a pulse of 120 or more. In fact, the patients who died a few days after the operation often seemed to stand it wonderfully well. When the solution is found to this riddle, it may confidently be expected that this operation will enjoy much greater popularity than it does at present. Another drawback to this operation is the fear of an open pneumothorax, and the slow development of chest surgery, as compared with abdominal and even head surgery, appears to have been mainly due to an almost morbid fear on this score. Now that the mechanism of mediastinal flutter and other sequels of an open pneumothorax is more fully appreciated, the bugbear of yesterday has to-day become a fairly well-controlled incident. The surgical treatment of pulmonary tuberculosis has been slow in achieving recognition in this country, but we may find a certain consolation in this that we are now beginning to benefit from the experiments and mistakes of pioneers in other countries.

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[1] Seventeenth annual report of the Metropolitan Water Board, London, 1923.

[2] Elizabeth H. Lepper: The Rate and Progress of Bacteriophage Action, British Journal of Experimental Pathology, August, 1923.

[1] Ugeskrift für Læger, August 16th, 1923.

DELAY IN PUBLICATION OF ACTS.

ON the last day of July the Rent Restriction Act of 1920 expired. On that same day a new Act received the Royal Assent and came forthwith into operation. Apart from introducing still further complications into the relationship of landlord and tenant—a matter which affects most of His Majesty's subjects—it contains provisions as to certification of dwelling-houses by sanitary authorities which are of special importance to public health administrators. But, though this Act came into force on July 31st, it was nearly a fortnight before an official copy of it was available for the public. Complaints of the delay appeared in the daily press, and even county court judges had to adjourn cases for want of information as to the law they were to administer. The same dilatoriness was displayed in other instances which more particularly concerned the medical profession. The brief Dentists Act took a full fortnight to produce. The Salmon and Freshwater Fisheries Act, which contains sections on Rivers Pollution, was a longer document and not available till nearly a month after it was passed. As is usually the case, it had been in print in Bill form for many weeks previously, and the wording required but the most trivial alterations when the Bill became an Act. It is true that the Fisheries Act does not operate until the end of the year, but postponed operation is no justification for postponed publication. Indeed, if these delays continue, it would be only fair if Parliament made it a rule never to pass an Act which took effect from the date of passing. The situation is even worse if we turn to the local Acts, many of which are of considerable importance to public health authorities and medical officers. It may seem incredible, but it is the fact that some of the local Acts passed in the middle of July, and many of those passed at the end of July, are even now not yet available to those whom they concern. The position in fact recalls the anecdote of the draftsman who many years ago was urging Whitehall to revise and consolidate the Food and Drugs Acts which were then, as they are now, a not entirely perfect body of law. A prominent official is said to have protested that there was no necessity for such a measure. "We understand the Acts inside the department, and the public finds out in the police court." If this cynical attitude does not survive in Whitehall, it might be suggested to the King's Printer that he should expedite his statutory publications. We believe it is a legal principle, perhaps we should call it a legal fiction, that we are all supposed to know the law. If so, there is no more urgent work before the official printers than the issue of Acts of Parliament.

There is another point not without effect upon the accessibility of legislation to the citizen who has to obey it. There has been a regrettable increase in the price of Acts. The Public General Acts passed last year cost a good deal more than a pound to purchase separately, and though, for those who could manage to wait till the end of the year, a collected edition ultimately appeared at the price of half a guinea, this latter price compares most unfavourably with the pre-war standard charge of 3*s*. which was invariably made for this volume, however great its bulk, down to the year 1918. As every Act had already been printed in Bill form, and as it must be printed for official use in any event, there seems no reason why the public should not be allowed to acquaint itself with the laws of the country at the cheapest possible cost.

THE ATTENUATION OF SMALL-POX VIRUS: AN EIGHTEENTH-CENTURY EXPERIMENT.

THE practice of inoculation against small-pox, as is well known, was first adopted in England in the early years of the eighteenth century, when it was introduced from Turkey through the letters of Lady Mary Montagu, wife of the British Ambassador at Constantinople. Towards the end of the century, when Jenner, in 1796, began to make experiments with cow-pox, inoculation as a preventive measure had spread widely over Britain, even to the remoter parts of Scotland. The operation was performed with the fresh crusts taken from a small-pox case, and although the disease so transmitted proved usually to be less severe than infection acquired by contagion, the idea of treating the crusts in any way so as to weaken their infective power while at the same time ensuring immunity had apparently not been entertained by any medical practitioner. But medicine has time and again registered a debt to those who, if not "quacks," at least were outside the pale of the profession, and it was a "Jack-of-all-trades" in the Shetland Isles who first put into practice the attenuation of the small-pox virus before transmission. His method was to "mature" the crusts from a small-pox patient for a number of years before inoculation. The story of his work is found in the "Statistical Account of Scotland," compiled by Sir John Sinclair, M.P. for Caithness, and published in 1791—in itself an interesting document and the forerunner of the general Census which was instituted in 1801. Sir John Sinclair memorialised all the parish ministers of Scotland for information on the natural history, population, and productions of their parishes, and in the report from Mid and South Yell, Shetland, the Rev. Mr. Andrew Dishington records the following:—

> "Population: The population of these parishes has of late years considerably increased. For this two reasons may be assigned: (1) The system adopted by the landholders of parcelling out their lands into very small farms, &c., ... and (2) the amazing success with which inoculation has been attended. Formerly the small-pox occasioned the most dreadful ravages in these islands; frequently carrying off a fifth part of the inhabitants. Now hardly any suffer by this disorder. Inoculation is successfully practised, even by the common people, but in particular by a person whose name is John Williamson, who, from his various attainments, is called *Johnny Notions* among his neighbours. Unassisted by education, and unfettered by the rules of art, he stands unrivalled in this business. Several thousands have been inoculated by him and he has not lost a single patient. His success being so remarkable, it may not be improper to take some notice of the method

he pursues, in case it can furnish any useful hints to persons of the medical profession. He is careful in providing the best matter and keeps it a long time before he puts it to use—sometimes seven or eight years. And, in order to lessen its virulence, he first dries it in peat smoke, and then puts it underground covered with camphor. Though many physicians recommend fresh matter this self-taught practitioner finds from experience that it always proves milder to the patient when it has lost a considerable degree of its strength. He uses no lancet in performing the operation but, by a small knife, made by his own hands, he gently raises a very little of the outer skin of the arm so that no blood follows; then puts in a very small quantity of the matter, which he immediately covers with the skin that had been thus raised. The only plaister he uses for healing the wound is a bit of cabbage leaf. It is particularly remarkable that there is not a single instance in his practice where the infection has not taken place and made its appearance at the usual time. He administers no medicine during the progress of the disease, nor does he use any previous preparations. He is a singular instance of an uncommon variety of talents, being a tailor, a joiner, a clock and watch maker, a blacksmith, and a physician."

Whether this method originated with him or not cannot be proved, but if it did, then this "orra man" anticipated much of the recent work which has been done on these lines.

"MEDICAL SCIENCE ABSTRACTS AND REVIEWS."

WITH its ninth volume, of which the first number appeared on Oct. 1st, *Medical Science Abstracts and Reviews* enters on a new phase in its career. Following changes made last year on the surgical side, now under the control of Mr. C. C. Choyce, new editorial arrangements in the Section of Medicine have taken effect. This great subject will be divided under the following headings, each controlled by the editor named: General Medicine, Prof. F. R. Fraser; Cardio-vascular Diseases, Sir Thomas Lewis; Metabolic Diseases, Prof. H. Maclean; Respiratory Diseases, Prof. J. C. Meakins; Diseases of the Nervous System, Dr. F. M. R. Walshe; while Prof. T. R. Elliott will act as associate editor for the whole section. Reviews and abstracts will continue to be published as before, but no attempt will be made to cover the whole output of medical publications; future reviews will deal on suitable occasion with selected articles or groups of observations. For abstracts the general policy will be that of selecting only such articles as appear to contain original information with conclusions based upon trustworthy methods of observation and thought. Of a select group of journals, however, all will be noticed completely as each issue appears, a full list of contents being given, together with abstracts of all the more important articles. In the October issue the current numbers of five journals—*Heart*, *Brain*, the *Journal of Experimental Medicine*, the *Journal of Infectious Diseases*, and the *British Journal of Experimental Pathology*—are thus treated, while reviews deal with Vincent's disease and with the work of R. Magnus and his collaborators on the pharmacology of the nervous system, with special reference to postural and other reflex reactions. Sixty-four pages are devoted to well-chosen abstracts, and an index of subjects and authors dealt with in Vol. VIII. concludes an admirable number, which contains also a key to the initials formerly given at the end of each review and abstract. This custom has now wisely been discontinued, the full name of each reviewer being set out. If complete anonymity is not to be preserved there is little point in publishing initials and withholding the key till the index appears.

We rejoice that the scope of the journal is to be less ambitious, in that any attempt to deal with the whole output of medical literature is to be abandoned. It must be admitted that in the past editing has not always implied selection and that certain sections have occasionally been overwhelmed by the contributions of one transcriber. The laudable anxiety to give due credit to foreign authors, whose work might not be easily accessible to British readers, has led to some strange results. For example, in a review of diseases of the spleen, purporting to be complete, a list of published cases of the rare Gaucher's disease omitted one published in the *Journal of Pathology and Bacteriology*, though its authenticity has never been in doubt. Again, when the mass of material dealt with is too great publication of abstracts of original articles must be long delayed and may ultimately give more pain than pleasure. If we stress some of the difficulties with which editors of this journal have been unable to cope in the past, it is only because the excellence of the matter in certain branches of medicine such as bacteriology, biochemistry, and radiology has set a high standard. The official organ of the Medical Research Council commands respect, and we believe that with this volume its usefulness, already unquestioned, will so increase as to make it a necessity for men practising medicine and surgery as well as those engaged in scientific research.

THE INSURANCE MEDICAL SERVICE.

As we go to press important decisions are being made on which depend the whole future of the panel service. Last week the Minister of Health met the National Health Insurance Consultative Councils for England and Scotland and on Oct. 2nd he received the Insurance Acts Committee of the B.M.A., when a final effort was made to make clear the standpoint of the doctors of the country. During the 48 hours following this meeting the considered reply of the Minister with the Government's offer was to be in the hands of the Insurance Acts Committee which had arranged to meet on Oct. 4th to consider the position. Between this date and Oct. 18th, when the annual conference of the Panel Committee takes place, meetings of practitioners will be held throughout the country in order that their representatives on the Panel Committee will be well informed as to the feeling of the profession on the term of service put before them.

COMPLEMENT DEVIATION IN TUBERCULOSIS.

A LARGE amount of investigation of the Bordet-Gengou reaction in pulmonary tuberculosis has been done in this country by Lisle Punch and Hope Gosse among others, and recently in Italy Dr. N. Parise has published the result of his own observations and researches which form an interesting comparison.[1] The antigen used by him consists of a bacillary emulsion prepared from old cultures of tubercle bacilli (three to four years) on agar, in which the agar is completely covered by a layer composed of numerous small scales, which are carefully scraped off and then subjected to a lengthy emulsification in a sterile glass mortar, 50 c.cm. physiological saline solution containing 1 per cent. carbolic acid being added drop by drop. This antigen keeps well at ordinary temperatures for 60 to 90 days. Experiments were made to show how the Bordet-Gengou reaction behaved (1) in healthy individuals, (2) in those affected with various non-tuberculous maladies, (3) in confirmed, and (4) in suspected tuberculosis. Out of 14 healthy individuals, in 13 the result was definitely negative; out of 51 cases of non-tuberculous diseases 48 were negative and seven positive, consisting of four of syphilis, and one each of malaria, echinococcus of lung, and influenza. Of 78 tuberculous cases, there were 24 in which Koch's bacillus was found in the sputum, 20 in which the clinical signs were definite with absence of tubercle bacilli in the sputum, and 34 in which the physical signs were suspicious. The results obtained were as follows: Of the first 24 cases the reaction was strongly positive in 22 and negative in the other two, who were in the last stage of the disease. The explanation of this is to be found in failure of production of antibodies, due to a condition of anergy which is commonly met in tuberculous patients in the terminal stages. It was for this reason, moreover, that the experiments were conducted with a serum obtained from patients certainly tuberculous, who, while they had tubercle bacilli in the sputum, were not in an excessively debilitated condition. In the second group of cases, out of 20 there were 17 positive and three negative reactions, the latter being from two patients suffering from tuberculous peritonitis and from one with incipient pulmonary tuberculosis. In the group of the pretuberculous, in whom radioscopic and other subsidiary signs were suspicious, there was a very high percentage of positive results equal to 95 per cent. These results, which confirm those of Punch and Gosse, point to the conclusion that the Bordet-Gengou reaction is generally negative in healthy individuals and generally positive in the tuberculous, and is of great value in the early diagnosis of tuberculosis.

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[1] La Riforma Medica, 1923, xxxix., July 23rd, 1923.

CANCER AND DIET.

Our leading article on Diet and Cancer has elicited from Dr. Copeman a letter which appeared in last week's Lancet. Dr. Copeman there disclaims the sensational statements which have been attributed to him by the lay press as having been made by him in Liverpool. He says that the use of his dietary has "not been found to exert any specific differential effect in the growth of the tumour, as had originally been hoped might prove to be the case, and that consequently the cure of cancer was not in question, the methods being at most palliative only." We welcome the disclaimer, but still find it difficult to reconcile this modest claim with Dr. Copeman's suggestion that the rationing in war time should have been the cause of the recorded diminution in mortality from cancer, or with the claim that his treatment increases the expectation of life. As regards our criticism that Dr. Copeman did not submit his results to his peers, we are informed that the meeting to which Dr. Copeman referred in his letter was a private one. It follows therefore that neither the substance of his communication at that meeting, nor any comment which may or may not have been made upon it, are available for the guidance of the medical profession as a whole, or for that of the general public.

COÖPERATION.

Our advertisement pages this week record a sound example of the value of coöperation between the editorial and business sides of a great journal, for while we are in other places alluding with, we trust, justifiable satisfaction to the attainment of a Centenary, we notice that many of the houses which are advertising in our columns are as venerable as ourselves, and several have a longer pedigree. The centennial course of the Morison Lectures is being delivered this year before the Royal College of Physicians of Edinburgh, the British Medical Association can trace its real foundation 90 years backwards, while the firm of Allen and Hanburys has a pedigree of over 200 years. Messrs. Offord and Son have been established more than a century, the Royal Medical Benevolent Fund has been at work for nearly 90 years, while Messrs. J. and A. Churchill are only two years short of their Centenary. The house of Cassell is but ten years younger, and Messrs. Duncan, Flockhart and Co. have been well-known agents for the supply of anæsthetics since their discovery, and the house of Martindale arrives at its jubilee this very year. Claimants to seniority ranging back for long if lesser periods are too many to be enumerated, but apart from the valuable information contained in the advertisements, the reader will find interesting notes on medical and pharmacological history in the *dossiers* of many of the firms. To the enterprise and support of many of these firms it has been due in large measure that we have been able for 100 years to keep faith with our readers. It may be observed that, as in the case of the editorial columns, so in the case of the advertisement pages, there is a perpetual stream of new effort. The old firms do not rely upon their antiquity for their success, for necessity, if nothing else compels them to keep pace with younger efforts directed sometimes generally and sometimes along special lines undreamt of at the foundation of The Lancet. These efforts change from day to day with the science of medicine which, in the words of the old French proverb, changes always, but always remains true to the same objectives.

EXPEDITION OF THE LONDON SCHOOL OF TROPICAL MEDICINE TO SAMOA.

A research expedition, under the direction of Dr. Patrick Buxton, is to leave on or about Nov. 15th for Samoa, where a number of problems of tropical medicine will be studied. The expedition will be absent for two years. The main object of study will be the practical prevention of filariasis and its associated diseases, the most striking of which is undoubtedly elephantiasis. The present is the fifth expedition which has been despatched to study this subject since the foundation of the School. The first was undertaken by Dr. G. C. Low[1] to the West Indies, and definitely established the exact mode of transmission of the filaria through the mosquito. This observer also shed a great deal of light upon the pathology of filariasis. Shortly after this the existence of a special variety of filaria worm, apparently confined to the Pacific Islands, became known. This led to the despatch of an expedition in 1910 under Dr. P. H. Bahr,[2] the results of which were definitely to establish the fact that the filaria of the Pacific inhabited by preference the lymphatic glands, that it produced embryos which circulated in equal numbers in the blood-stream both by day and by night, and differed in this respect from the nocturnal periodic habit of the filaria of other parts of the tropics. The intermediary host of this filaria was found to be a peculiar mosquito known as *Stegomyia pseudoscutellaris* (now termed *Aedes variagatus*), a day-biting insect, one which is peculiar to the Pacific Islands and which occurs there in very great numbers. No morphological differences could be ascertained to exist between the adult filaria worm removed at operation or autopsy from the Fijians and similar ones indigenous to India, China, and elsewhere (*F. bancrofti*). In 1921 a Commission under Prof. R. T. Leiper and Dr. J. Anderson studied the same question in British Guiana, where the typical *F. bancrofti* is abundant, and the report of this expedition is now awaited. To elucidate further these interesting problems regarding the Pacific filaria, Dr. F. W. O'Connor [3] was despatched to the Western Pacific, making the second expedition to that area, and visited the Allice, Tokelau, and Samoan Islands in 1921 and 1922. The result of his very extensive travels was to demonstrate more fully the correlation between the distribution of filariasis in the Pacific and that of its intermediary host, the stegomyia, for wherever this insect abounds filariasis is common. It was further ascertained that this insect is definitely connected with the presence of the coconut palm, abounding under its shadow and breeding in the disused coconut shells which are cast aside in the making of copra. It also thrives in any collection of water in the hollow trunks of the coconut palm. Further evidence was adduced that the filaria of the Pacific may be, in a pathological sense at any rate, distinguished from the true *F. bancrofti*. The close connexion between ankylostomiasis, filariasis, and tuberculosis, all of which diseases are combining to exterminate many of the Polynesian races, was definitely established. It is now proposed to extend the results of these various expeditions still further, and to demonstrate the possibility of prevention of filariasis by measures directed against the intermediary host, the stegomyia. All attempts so far at finding a drug sufficiently potent to kill off the embryo filariæ in the blood-stream have failed, nor does there seem to be any possibility of the discovery of such a drug in the future.

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[1] Low, G. C.: Jl. Tropical Medicine, 1901, Nov. 1st, p. 357.

[2] Bahr, P. H.: Filariasis and Elephantiasis in Fiji. Report to London School of Tropical Medicine, 1912.

[3] O'Connor, F. W.: Researches in the Western Pacific. Research Memoirs of the London School of Tropical Medicine, vol. iv.

The prevention of this disease is not such a difficult matter as might at first appear to be the case. It is proposed to make an actual experiment on the same lines as are familiar in the prevention of malaria and yellow fever. It is known that the insect and the disease it carries are specially common on small coral atolls, of which many are to be found in the Samoan group. On these islets the growth of vegetation composed of thick masses of coconut palms may be only some 50 or 60 yards in diameter. It is quite possible that by cutting out the undergrowth, by burning the disused coconut shells, by filling in possible breeding-places in the trees, and by providing the inhabitants with a proper water-supply, the numbers of this very specialised insect may be so reduced in a few months' time as to become negligible; and it follows that if this insect can be exterminated the disease will die out with it. Although there are five other species of mosquito which bite man in these islands, yet this is the only species (and all the others have been tried) which will act as an efficient intermediary host of the filaria. It is into this and other cognate problems that Dr. Buxton will inquire. He will be assisted in all probability by one or more newly qualified medical men from New Zealand, and it is hoped that in this way an interest for the study of tropical diseases will be kindled in the medical schools of that progressive Dominion, for it is only recently that New Zealand has been saddled with the responsibility of tropical possessions in the mandatory territory of the Samoan group. There are other important researches which the expedition will undertake, notably those concerning the physiology of the normal European body under tropical conditions, and the regulation of the formation and loss of body heat will be investigated by means of the kata-thermometer and other specialised instruments. It is hoped also to undertake researches on the biochemistry of the blood and urine during acclimatisation in the tropics, and this is a subject upon which very little information exists.

THE Royal Medical Benevolent Fund has received from Sir Thomas Barlow a donation of £300, which has been invested for the benefit of the annuitants.

AT the Royal Society of Medicine, in the Section of Therapeutics and Pharmacology, on Oct. 9th, at 4.30 P.M., there will be a discussion on the Use of Insulin in General Practice, at which the first speakers will be Prof. Hugh Maclean, Dr. George Graham, and Prof. J. J. R. Macleod.

INSTALLATION OF NEW X RAY APPARATUS IN ELGIN. At the quarterly meeting of the managers of Dr. Gray's Hospital, Elgin, it was decided to have a new X ray apparatus installed. Mr. J. F. Cumming, of Aberlour, one of the directors of the hospital, offered to defray the whole expense of the new X ray plant.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Gertrude Alice Rees, of West Hill-road, Bournemouth, the testatrix left £5000 on trust for her husband for life with remainder to the Liverpool Royal Infirmary to be used for the convalescent treatment of patients from that hospital in memory of her late son, Alexander Armstrong Rees, M.D., R.A.M.C.—By will the late Mrs. Susanna M. Taylor, of Putney, left among other bequests £500 to the Putney Hospital, £100 to St. Columbia's Hospital, £50 to the Cottage Convalescent Home, Wimbledon, and 10s. each to the patients at the time of her death at the Royal Hospital for Incurables, "as a little pocket money."

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXXIX.

THE TREATMENT OF FLAT-FOOT.

THE worst symptoms of flat-foot occur in feet which are not flat; the term "flat-foot," as commonly used, covers also those conditions of foot strain and flattening foot which precede the fully developed flat-foot. Symptoms of flat-foot arise when the muscles which act on the foot fail to resist the crushing down action of the body-weight. The foot itself, apart from its muscles, is not designed to support the body-weight, and, when pressure is made upon it from above, it is crushed down, flattened, and passively abducted and everted. The function of the muscles is to prevent this passive displacement and distortion by a continuous tonic reflex contraction of the adductors and invertors, which is but a part of the postural reflex which maintains the upright position of the body as a whole. Any condition, local or general, which interferes with this muscular action causes strain and flattening of the foot. The commonest cause of flat-foot in adults is prolonged standing or over-use of the foot, whereby the muscles are exhausted; almost as common is flat-foot in individuals suffering from general loss of tone from various causes. Local injury also temporarily abolishes the reflex activity of the muscles, so that traumatic flat-foot is a common sequel of sprained ankle, Pott's fracture, &c. In most cases faulty boots and shoes contribute to the mechanical strain, and are often the direct cause of the flat-foot. The effect of crushing down the foot depends upon the type of foot, and there are very many different types. In general, the severity of the symptoms is in proportion to the resistance offered. The low-arched supple foot, with freely mobile joints and atonic muscles, flattens easily, without resistance and without pain, while the high-arched thick-set or sturdy foot offers great resistance and distortion of its joints causes great pain, which is felt long before any flattening is apparent.

In most cases flat-foot develops gradually; for a long time the foot remains supple, and its natural form can be easily restored by gentle manipulation or by voluntary effort. But sooner or later the foot becomes fixed or partly fixed by secondary changes in and around the joints. At first the loss of mobility is due to "adhesions" or contracture of ligaments on the outer side of the joints, but in old-standing cases the foot becomes rigid from osteo-arthritic changes. When flat-foot develops rapidly, the pain from the rapid distortion of the joints may give rise to reflex spasm of all the muscles acting on the foot; this spasm is most pronounced in the peronei muscles, and the foot is held rigidly abducted and everted.

The only real cure is to restore to the muscles their normal postural activity, though the ideal result is not always attainable in practice. Some individuals are unsuited to muscular re-education, and in many cases circumstances, such as continued over-use of the foot, make the attempt hopeless. One must, then, be content to relieve the foot from mechanical strain, so that the patient may walk in comfort.

Preliminary Measures.

Before curative treatment can be attempted it is necessary (1) that the foot shall be capable of being brought into its proper position by the action of its own muscles, and (2) that the foot and its muscles be relieved from mechanical strain. (1) When the foot is still supple the patient can invert it and draw up the arch. When it is stiff from adhesions or shortening of the ligaments it should be thoroughly manipulated under an anæsthetic, after which it should be firmly strapped or bandaged for a few days, and active movements should be begun as soon as possible; it is not necessary to fix it in plaster-of-Paris. No attempt should be made to mobilise old-standing or inveterate flat-feet or those that are rigid from osteo-arthritis. (2) When the foot can be brought into its natural position it is necessary to retain that position by a suitable arrangement of the boot or shoe until the normal muscular action is restored. This is in practice the most important part of the treatment, for foot strain is thereby relieved, and, whether or not true restoration of function follows, the patient is at least rescued from pain and disfigurement. It would seem superfluous to say that the boot should fit the foot were it not that the majority of people wear boots and shoes that are too big for them. The boot should hold the foot, not merely cover it.

Men's Shoes.—The usual type of man's boot or shoe, when new, has an almost flat inner sole (insole) which in no way corresponds to the shape of the sole of the foot. When a normal active foot walks in such a boot or shoe it tends to make a bed for itself by depressing the insole at the main points of pressure—namely, under the heel, along the outer border, and beneath the heads of all the metatarsal bones. To this pressure of the foot upon the insole there is, of course, a corresponding counter-pressure of the insole upon the foot. An exhausted or inactive foot is unable to resist this pressure, and, instead of moulding the insole to its own contour, it becomes itself flattened to conform to the surface upon which it rests. Further, the waist of the boot between the heel and the tread may give way when the insole becomes actually concave upwards, and the strain on the foot is correspondingly increased. The obvious way to prevent, and also to correct, this flattening effect of the boot or shoe is to make the insole to conform to the shape of the sole of the foot. The foot, indeed, should stand on its own footprint, exaggerated if need be, and will then drop into its natural position even though the muscles are relaxed. This is a question of balance rather than support; it is entirely unnatural for the arch of the foot to be propped up by a rigid unyielding support. The "moulded insole" is the best means of keeping the supple flat-foot in its proper position during use. It is made by taking the last upon which the boot or shoe is to be made and building it up with leather at the points where the insole is to be depressed—namely, along the outer border and across the tread to the ball of the big toe. The instep is thus by contrast made higher, and it may be raised still more by cutting away the last, which must be made to correspond to the particular type of foot. A foot with a high arch requires a greater depression under the tread, and a higher instep, than a foot with a medium or low arch. The height of the heel is not just a matter of choice; the correct height is found by placing a straight edge approximately at a tangent to the tread of the last, and noting its distance from the heel. The greater the depression under the ball of the foot, the higher the heel. In many cases it is an advantage to raise somewhat the inner side of the heel, so as to throw the posterior part of the foot outwards, but no wedge should be put on the inner side of the sole, for in walking the foot must "take off" from the big toe, which must, therefore, be dropped and not raised from the ground. Finally, the insole must have a firm foundation to rest upon or the waist of the boot may be broken. A stout leather "shank piece" should be inserted between the soles from the heel—not under it—to the tread.

Women's Shoes.—The usual type of woman's shoe has a heel two inches or more in height, and the sole slopes abruptly from the back of the heel to the tread, so that the foot tends to slide down an inclined plane surface on to the heads of the metatarsal bones. The sole is flexible and yielding, so that when pressure is put on it from above, the waist of the shoe is bent downwards, the toe rises, and the heel is tilted upwards and backwards. A normal active foot rests upon such a shoe only at the heel and tread. When, however, muscular action is deficient, the foot comes to rest more and more upon the insole of the shoe, and breaks it down in the middle; further, owing to lack of lateral stability, the high narrow heel causes a great strain to come on the foot in the abducted position. The moulded insole for a woman's shoe should be constructed on the lines already described, but the shoe need not be unsightly. The sole must be rather thicker than is usual in a woman's shoe, and the necessary shank piece in the waist adds a little to the thickness and weight. A heel of 1¾ or 2 in. must often be allowed. Indeed, owing to her manner of walking—which is quite different from that of a man—a woman requires a deep bed under the tread, and this in itself necessitates a relatively high heel. The "upper" may be of any material fancied; it is quite possible to construct a presentable shoe which is yet surgically correct. A central point, though not strictly correct, may be conceded; hallux valgus, except in its slighter degrees, is not due to pointed shoes, but to flat-foot, and if the shoe is in other respects correctly made, the central toe does no great harm.

The chief difficulties in practice are the inconvenience and expense of having to have every pair of boots and shoes specially made, and the difficulty of getting the ordinary bootmaker to make them as required. In the slighter degrees of painless flat-foot, especially in children, one may be content to raise the inner side of the heel and put a loose raised insole under the foot. But in flat-foot of any severity, and when there is pain, it is essential to have the boots or shoes correctly made.

Muscular Re-education.

When the foot is kept in its proper position and the strain has been relieved, the natural function of walking will in many cases provide all the exercise necessary. The patient should be told to get some spring into the gait, and to use the feet actively. An additional exercise is to stand with the feet together and sharply invert them so as to stand on their outer borders. This movement brings the postural muscles into action and draws up the arch of the foot. It is the only exercise that need be done. The patient should be told to practise it whenever he is standing. Its object is to re-educate a reflex; and a simple exercise done continually and habitually is far more effective than a series of exercises done on set occasions. No attempt should be made to correct old-standing, inveterate, or rigid flat-foot. The boot or shoe should be an easy fit, the insole should be made quite flat like the foot, and the heel should be low. If there is pain beneath the heads of the metatarsal bones, some soft material such as spongy rubber should be put under the tread.

Spasmodic Flat-foot.—The best treatment for peroneal spasm is to ignore it. It is a self-limiting condition which may persist for months, though not indefinitely. The foot, regardless of its present form, should be put into a boot constructed for its normal condition with a high arch and a deep bed under the heads of the metatarsal bones. The patient should be shown how to pull the foot inwards and relax the spasm, which he will gradually find himself able to do. It is unnecessary to divide the peroneal tendons, to crush the nerve, or to manipulate and immobilise the foot. The spasm eventually goes under the simple treatment outlined and the foot returns to its natural position.

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Previous articles in this series are:—

I. Medical Treatment of Gall-Bladder Disease, by Sir Humphry Rolleston. II. Early Pulmonary Tuberculosis in the Young Adult, by Dr. Claude Lillingston. III. Neuralgias of the Head and Neck, by Dr. Wilfred Harris. IV. Whooping-Cough, by Dr. T. Izod Bennett. V. Scabies and Pediculosis, by Dr. H. W. Barber. VI. Abdominal Injuries, by Prof. Charles A. Morton. VII. Aural Discharge in Children, by Mr. Harold Barwell. VIII. Vaginal Discharge, by Mr. A. W. Bourne. IX. Minor Injuries to the Eye, by Sir J. H. Parsons. X. Epilepsy, by Dr. Gordon Holmes. XI. Inguinal Hernia in Childhood, by Mr. C. W. G. Bryan. XII. Oblique Inguinal Hernia in Adults, by Prof. A. W. Sheen. XIII. Eclampsia, by Dr. Gibbon FitzGibbon. XIV. Club-foot in the Newly-born, by Sir Robert Jones. XV. Intestinal Worms, by Dr. R. Hutchison. XVI. Primary or Spasmodic Dysmenorrhœa, by

(*Continued at foot of next page.*)

Special Articles.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A Ministry of Health.

THE question of the establishment of a Ministry of Health in the Free State has lately attracted some public attention. On Sept. 19th the Council of the Irish Nurses' and Midwives' Union at its annual congress unanimously passed a resolution authorising its executive to take whatever steps lay in its power to organise a united demand by nursing organisations, and other bodies interested in health, that a Ministry of Health should be established. The following day in Dail Earann, Sir James Craig, in a debate dealing with the appointment of ministers, regretted that nothing had been said about the establishment of a Ministry for Public Health. He was not one to urge the multiplication of ministries, but surely the health of the people was of more importance than fisheries. The health of the country was in a very serious position. If a special ministry could not be set up he suggested the setting up within the Local Government Department of a department of public health, with a secretary or some other person responsible in the Dail. He regretted that Mr. Ernest Blythe was giving up the Ministry of Local Government. Mr. Blythe, in reply, said that there could be no question of having a department for local government and a separate department for public health at the same time. The Local Government Department was almost entirely concerned with matters of public health. It was really a matter of choosing a name, for it was intended to give the Local Government Department the real substance of a Ministry of Public Health, with one or two functions added to it for the sake of convenience. The position is by no means satisfactory. If the Department of Local Government is to be in truth a Ministry of Health, it should be so called, that both the Minister and his permanent staff might know where their real duties lie. At the present time the Ministry deals with many matters not remotely connected with health, such as the maintenance of roads and the control of fairs and markets. On the other hand, some important matters of health, such as the inspection of factories and the department of vital statistics, are not under its control.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

Cancer Congress at Strasbourg.

THE summer vacation, now ending, was at least partially filled for those engaged in scientific medicine by a series of important Congresses, of which the Cancer Congress held at Strasbourg at the end of July was among the more important. The Congress was presided over by Prof. Pierre Delbet, was opened by Mr. Paul Strauss, Minister of Hygiene, and included among its members many distinguished foreigners. Of the three main subjects dealt with at the Congress, the first was the experimental production of cancer. Prof. J. Fibiger (Copenhagen) discussed the Spiroptera-cancer discovered by him in 1907. This growth is produced by a parasite living in the upper part of the digestive tract of rats and mice, with the cockroach as intermediate host, the insect being infected by ingestion of the fæces of these animals. Fibiger believes that the cancrogenous action is due to the secretion of the parasites themselves in a soil predisposed to cancer. The nature of the predisposition depends on factors affecting the entire organism together with the cells at whose expense the cancer grows. Prof. K. Itchikawa (Sapporo, Japan) gave a fully documented résumé of his researches into the experimental production of cancer with tar. The simple chemical and physical irritation of tar applied repeatedly and continuously to the internal aspect of a rabbit's ear produces cancer of the epithelial cells in the same way as the action of the parasites described by Fibiger. Dr. J. A. Murray (London) read a remarkable paper on Primary and Secondary Resistance to the Production of Cancer.[1] Dr. A. Leitch (London) contributed a communication on the specificity of various cancer-producing agents, interpreting cellular cancerisation as a continuous and prolonged manifestation of the normal action of tissue repair. The second subject of discussion, the general reaction of the organism in connexion with cancer, was dealt with by Dr. Rubens-Duval (Paris) and Dr. W. H. Woglom (New York). The third subject, the treatment by radium and X rays of spino-cellular epitheliomas of the skin and mouth, was discussed by Profs. A. Bayet (Brussels) and Cl. Régaud (Paris).

Other Vacation Congresses.

The conference of French alienists and neurologists held at Besançon in August was remarkable for an attack by Dr. Hesnard on Freud's theory. Hesnard maintained that the cause of nervous and mental diseases was only related to sex in exceptional instances, being far more commonly connected with poverty, business failure, thwarted ambition, or physical infirmity. He also criticised psycho-analysis as a means of diagnosis, holding that the method is uncertain, and may induce hysterical symptoms or further derange patients already unbalanced. From a therapeutic standpoint, he considered that the numerous cases whose ætiology included an organic factor were incurable by this method, and that when psycho-analysis gave results these were no better than those obtained by any other psycho-therapeutic method. Dr. Courban attributed the success of psycho-analysis in Anglo-Saxon countries to the mystery with which sexual matters are surrounded by Protestant morality.

The Fourth International Congress of Neurology, held at the Salpêtrière, Paris, in the summer vacation, was attended by many foreign delegates, among them Sir James Purves-Stewart and Dr. G. Riddoch.

The following Congresses will shortly be held in Paris at the Faculty of Medicine: Twenty-third Congress of Urology, beginning on Oct. 10th, President, Prof. André; Thirty-second Congress of Surgery, Oct. 8th to 13th; Congress of Orthopædics, Oct. 12th; Annual Congress of Hygiene, Oct. 22nd to 26th.

A Home for Doctors in France.

A party of members of the French medical profession recently assembled at Valenton (Seine-et-Oise) in the Château de Charmilles, which has been established as a home or retreat for aged and infirm medical men, and it has been christened "La Maison du Médicin." The home owes its origin to an association which was founded in 1908 with headquarters in No. 9, Rue Astorg, Paris, whose object was to establish and control one or more homes where aged, infirm, sick, or needy

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(*Continued from previous page.*)

Dr. G. Blacker. XVII. Measles, by Dr. Foord Caiger. XVIII. and XIX. Heart Failure, Preventive Treatment, Therapeutics, by Dr. J. Parkinson. XX. Gonococcal Epididymitis and its Bearing on Sterility, by Mr. Kenneth M. Walker. XXI. Ante-partum Hæmorrhage, by Dr. T. Watts Eden. XXII. Ringworm, by Dr. A Whitfield. XXIII. Cystitis, by Mr. J. B. Macalpine. XXIV. Hæmorrhoids, by Mr. R. M. Rowe. XXV. Puerperal Sepsis, by Lady Barrett. XXVI. Cyclic Vomiting, by Dr. G. F. Still. XXVII. Asthma, by Dr. E. P. Poulton. XXVIII. Traumatic Rupture of the Urethra, by Mr. G. Grey Turner. XXIX. Habitual Constipation, by Dr. Arthur F. Hurst. XXX. Hypertrophied Prostate, by Prof. Charles A. Pannett. XXXI. Infantile Eczema, by Dr. H. MacCormac. XXXII. Exophthalmic Goitre and Other Forms of Hyperthyroidism, by Prof. G. R. Murray. XXXIII. Syphilis in the Woman of Child-Bearing Age, by Dr. Margaret Rorke. XXXIV. Anæsthetic Sickness, by Dr. J. Blomfield. XXXV. Enuresis, by Dr. H. Thursfield. XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham.

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[1] Published in THE LANCET, July 28th, p. 159.

medical men might be cared for. The Association does not aim at making financial profit; the home is maintained by donations and by subscriptions from members of the Doctors Home Association. Residents in the home contribute towards the expenses of their keep, but before the war the income from this source was never more than Fr.12,000 (£480) per annum. From the start all the best known medical men of France have given their support to the work of the Association. The principles of making a charge, however small, for board and lodging helps to preserve a sense of independence, yet while the principle is one of "paying guests," no really destitute case is ever turned away. In recent years the grounds of the home have been extended and they now cover over 15 acres. Many of the boarders spend their time working in the gardens or the orchards, and during the winter theatrical performances and concerts are held. English medical men are invited to visit the home at Valenton.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Vienna Medical Faculty: Weekly Discussions.

ACTING on a suggestion thrown out by a few members of the Vienna University, the medical faculty organised last year a series of discussions with a view to attracting the attention of the profession to the latest achievements in the art of medicine. By providing post-graduate opportunities for the interchange of ideas and opinions this scheme has, within one year, become an important asset to the entire medical profession of Vienna. The discussions are held on Monday evenings. Admission is free, no membership is required, and any medical man is welcome. Any practitioner may suggest in writing to the secretary of the faculty a subject on which he desires information. The questions submitted are handed over to leading specialists, each of whom volunteers to deliver a lecture on a particular subject. Generally a week is allowed for preparation. At the meetings anyone may put questions to the lecturers. The discussions last two hours and are well attended, the average number present being about 50. An interesting feature is the eagerness with which the older members of the profession take an active part in the proceedings of the "Seminar-abend," as these evening meetings are called. It speaks well for the institution that it has already served as a model for similar developments in various university towns of Germany. That the earnest spirit underlying such work is already bearing fruit is shown in the rising scientific standard and public reputation of the profession.

A School of Nursing for Medical Men.

The Vienna University Clinic for Children inaugurated a few months ago a totally new departure in the medical curriculum—a school of nursing for doctors. It is a well-known fact that very often the practitioner has to order this or that measure in the course of the management of a serious case of illness in a child, but the mother or even the nurse does not always know how to carry out his instructions in the most effective and satisfactory way. Often, too, doctor and mother are at cross purposes, through sheer ignorance on the doctor's part of domestic exigencies. To such considerations we owe the opening of the above-mentioned school in the Pirquet Clinic. The plan of work is as follows: Four physicians of the clinic—house physicians of the hospital—are entrusted with the entire care of the ward. They have to do all the work usually resting on the shoulders of the nurses or "sisters," in managing a sick child. This task is best illustrated by the following programme of the duties. At 5.45 A.M. the doctors take over the charge of the ward. From that time till 7.15 A.M. they must wash, bathe, and tidy the children (or babies, as the case may be). The next 30 minutes the breakfast is served by them to the patients. Up till 9 A.M. the preparation of the patients for the morning round of the professor, marking the temperature charts, giving medicine or other treatment prescribed, superintending feeding the sucklings. 9–10 A.M., morning round. 10 A.M. to 12 noon, examination of newcomers, dismissal of old patients, temperature taking, feeding of babies. 12 noon to 1 P.M., serving out of dinner (or lunch), feeding of the older children. 1–3 P.M., nursing work on the new patients, feeding of babies. 3–4 P.M., preparation for the evening round, tea for the older children. 4–5 P.M., evening round. 5–6.30 P.M., temperature taking, feeding of the babies, supper for the older patients. 6.30–7.30 P.M., filling in of the charts and records of each patient. At 7.30 P.M., the day service terminates. The night duties are at present discharged by a nurse, but will in future also fall to the lot of the physicians. Physicians attached to this ward must serve a term of two months. It is hoped that in the future all house physicians of the Pirquet Clinic will be obliged to undergo training in the school. Not a few of the duties hitherto regarded as purely "feminine," such as shaking the bed-quilts, spreading the table-cloths, or the administration of an enema, are rather embarrassing at first, but the young doctor soon gets used to it. In order to ensure variety of experience in nursing duties, the children are left in this school "for doctors only" for a few days. All new patients must pass through this ward before they are distributed in the other wards of the clinic, so that in these few days the doctor has the opportunity of studying a larger number of differing types of patient than was formerly possible. Many useful "tips" in feeding, holding, and calming children are learned and insight into the little patients' minds is gained—a point of paramount importance for the future task of the practitioner. The ward personnel includes two women, a maid for purely household work, and a nurse whose duty it is to initiate the "essentially masculine" students into what has too long been considered woman's province. The idea of this "school of nursing" has been received with great approval by the profession generally, and it is contemplated that the new curriculum for the medical student which is now under consideration and which will necessitate a year of practical work before giving the right to practise, might also include a course in this school.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Numbers of the Medical Profession in Hungary.

ACCORDING to a report issued by the Hungarian Medical Association there are at present 4489 physicians practising in Hungary. Of these, 2012 practise in Budapest. As the population of the country is something over 8,000,000, the ratio of physicians to population is too high. The number of physicians is decreasing on an average by 225 a year; the number of medical students in the country in 1922–23 was 6751. The Medical Association is now advising parents not to encourage their children to enter this overcrowded profession. The distribution of doctors is very uneven; in towns the ratio of doctors to population is 1 in 350–500, but numerous small provincial towns have no resident medical men at all.

The Scientific and Commonwealth Universities.

At the opening of the present session of the Scientific University of Budapest the number of registered students was greatly reduced as compared with that of previous years, particularly in the Faculties of Medicine and Philosophy. Many students are prevented from taking up the study of medicine by the expense involved. The Minister of Public Instruction permitted the registration of no more than 500 students in the Faculty of Law, but the "Commonwealth" University admitted 1400 students without objection from the Minister. The Scientific University does not even now recognise the Faculties of the

Commonwealth University, and the latter is not represented in the Council of the Scientific University. The Council has several times requested the Minister to establish a proportion between the numbers of students in the two Universities. The teachers in the Commonwealth University have not even the rank of lecturers, while those in the Scientific University are all qualified University professors. The Council of the Scientific University also complain that the Minister neglects the upkeep of the University library, despite its European reputation, allocating only 200,000 kronen (about £30) for the purpose during the year, whilst other libraries received 40–50 million kronen.

An Unjustified Accusation.

Dr. Ödön Nemeth, professor of mental diseases at the University of Budapest, was lately accused by a lawyer of ill-treating his (the lawyer's) brother, an army captain, while the latter was under his care in an observation ward of a mental hospital. The charge included neglect of attention to the patient's cleanliness, clothing and food, and brutal handling, with disastrous effects upon his general health. A full investigation of the facts proved that all the indictments originated with lay visitors, who made misstatements to the lawyer. It also transpired that the latter had attempted to influence the doctor with a view to removing any impediment to the captain's promotion to higher rank, and consequent entitlement to a higher pension. Dr. Nemeth brought numerous witnesses to prove that his diagnosis was correct, and was corroborated by Prof. Moravcsik, the leading forensic expert in Hungary. The treatment was shown to be the most modern and humane treatment available. The prosecuting lawyer acknowledged that his information was derived from unreliable sources, and apologised to the professor. The court was not satisfied with the apology, although the professor accepted it ; a charge of falsely accusing a public official will shortly be preferred against the lawyer.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

A Case of Pneumo-peritoneum.

AN interesting case was lately shown to the Berlin Medical Society by Dr. Mosler. A man of 63 years had been run over by a butcher's cart 15 years ago. He was in hospital for five months, the case being diagnosed as a fracture of several ribs of the left side. After the accident the abdomen had always been much inflated. Radiographic examination has now revealed a quantity of air present in the abdomen, by which the liver and the spleen were displaced downwards and the diaphragm pressed upwards. The cause of this pneumo-peritoneum was obviously a rupture of the lung and of the diaphragm which had not healed. Through the fistula of the lung and the fissure in the diaphragm air was continuously inhaled into the abdomen, to be absorbed in part during the night. Notwithstanding the gravity of the injury the man suffered little and was able to work.

Regulation of Medical Fees.

As already explained in these columns, the Government is authorised by law to fix the fees in cases where they have not been agreed upon between the patient and his medical attendant and to issue official regulations in the matter. Recently sanction has been given to additional payment in accordance with the value of the currency, the last increase being to 20,000 per cent. The Leipziger Verband, the great union of the German medical profession, has protested against the amount of this increase, pointing out that the cost of living had increased by 40,000 per cent. The Government stated that the fees had been raised in the same ratio as the salary of the Government officials, whereupon the Leipziger Verband, in a letter addressed to the Government Medical Department, answered that there are many differences between Government officials and medical men to the disadvantage of the latter. The officials receive their salaries one month in advance, whilst the medical men, especially those engaged in club practice, receive their fee at the end of the month or even at the end of a quarter. The officials have no professional expenses for instruments, telephone, assistance, consulting-rooms, &c., which reduce the income by about 50 per cent. ; moreover, Government officials are entitled to a pension for themselves and their dependents, whilst a medical man must try to save funds for the support of his family, a matter quite impossible under the present circumstances. Government officials residing in the occupied district receive, moreover, an extra remuneration, whilst the fees of medical men are the same there as in unoccupied Germany, notwithstanding the cost of living is several times higher there. The medical profession will, as the Leipziger Verband states, be rapidly reduced to the starvation level if its members do not get more assistance from the authorities in their struggle of life.

New First-Aid Huts in Berlin.

A private society of advertising contractors lately started a system of first-aid by constructing small huts in busy thoroughfares to contain a transportable stretcher, medicines for emergencies, dressing materials, splints, &c. In cases of sunstroke the patient may be laid in the shady hut until he is conveyed to a hospital. The hut can be opened by breaking a pane, under which the key is placed. A few of the huts—of which the society intends to build about ten—have been put up already. The expenses will be entirely met by the advertisements on the walls of the huts.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Government Control of Hospitals and Charities.

ON July 1st, 1923, came into force the Act relating to hospitals and charities passed by the Legislative Assembly of the State of Victoria in December, 1922, which, as far as can be ascertained, is the most comprehensive legislative scheme of the kind in existence. The object is the central control of all charitable agencies in the State. Some of the salient features of the Act are, that every charitable institution and every benevolent society or organisation in the State must register by approval of a Charities Board ; that no person or authority can appeal for, nor accept contributions on behalf of, any charitable movement unless so registered. The Board has the power to close any unnecessary hospital or charity, to amalgamate institutions which are serving the same purpose in close proximity, to determine the use to which any institution may be put, and to resume any land which is considered essential for hospital purposes.

Post-graduate Teaching in Melbourne.

There is marked enthusiasm and activity in post-graduate teaching in Melbourne. The work is arranged by a representative committee under whose auspices Dr. J. F. Wilkinson has just completed a series of lectures on the treatment of gastric disorders and diabetes. The lecturer has recently returned from an extended tour of most of the special hospitals (English and American) doing this work. Judging from his views, especially those on the treatment of diabetes, Dr. Wilkinson spent more time in America than in England. The lectures were a masterly résumé of all the modern work, and referred especially to the new insulin treatment, the early results of which he had seen in America.

The Hobart Hospital, Tasmania.

Trouble arose at the Hobart Hospital (Tasmania) some years ago over an announcement by the Government that the hospitals were open to anyone caring to seek admission. After protest the honorary visiting staff resigned, and the Government made a contract with one, Victor Richard Ratten, to act as surgeon-superintendent. It was subsequently discovered that Ratten had been registered in virtue of a certificate of what appeared to be a bogus American night college, thereupon the Government passed a special measure to legalise this registration. It was felt that the state of affairs at this hospital was to the disadvantage both of the medical profession and the hospital public; therefore, on the reappointment of the surgeon-superintendent falling due, an attempt was made to arrange a conference between the B.M.A. and the board of management of the hospital. This conference was arranged, but before it could take place Ratten was reappointed by the board of management as the surgeon-superintendent with limited right of private practice. The matter will now drop unless the Government intervenes, and it is unlikely that the local medical profession will accept any appointment at this hospital in the future.

Insulin in Australia.

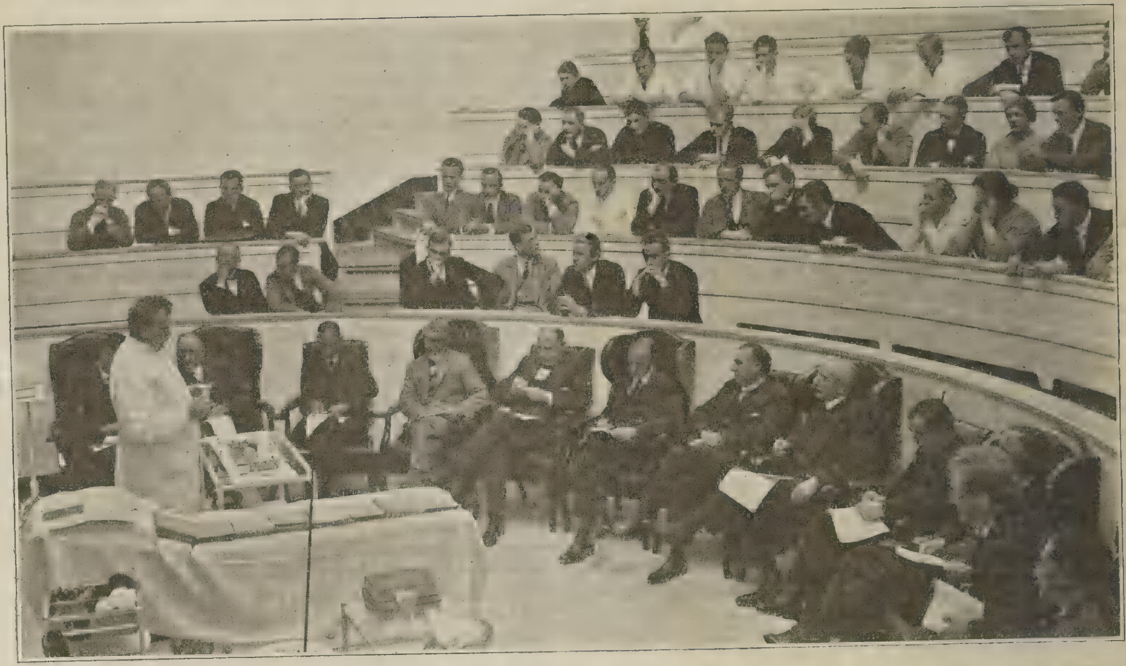
The Commonwealth Serum Institute has undertaken the manufacture of insulin, but up to the present it is only available in limited quantities and to special hospitals. The manufacture is being carried out under great difficulties, and it is not likely that it will be produced in any large amounts at present.

The Australian Medical Congress.

The arrangements for the Congress to be held in Melbourne in November are well advanced. A special feature will be a discussion on the early diagnosis of tubercle, in which all sections are taking part. Other subjects for general discussion are exophthalmic goitre and renal insufficiency.

BRITISH SURGEONS IN DENMARK.

THE recent visit of a party of British surgeons to Denmark, under the ægis of Prof. W. Thelwall Thomas, afforded a welcome opportunity to many of them to make the acquaintance for the first time of Prof. Thorkild Rovsing, the most distinguished of the Scandinavian surgeons. Rovsing's many and great achievements have been the outcome of a combination of qualities, one at least of which is rare. He has always shown an inveterate distrust of traditional teachings and text-book orthodoxy, and his work has not only consisted of building up but also of breaking down and clearing away much rubbish. His special field has for many years been abdominal surgery, and his treatise on this subject has been a standard work for more than a generation. For the past 30 years he has devoted special attention to the subject of gall-stones, and the part of this work which has already been published shows him in his most characteristic attitude—that of the iconoclast attacking false gods. It is anticipated that the final chapter of this work will be published in a few weeks; it challenges many of the accepted theories as to the genesis and development of gall-stones.



Prof. Thorkild Rovsing demonstrating to British surgeons and Danish students at the Danish State Hospital. The visitors included Mr. John Anderson, Mr. Arthur Henry Burgess, Mr. Arthur Cooke, Mr. Ernest F. Finch, Prof. E. W. Hey Groves, Mr. Robert Ernest Kelly, Sir John Lynn-Thomas, Mr. Keith W. Monsarrat, Mr. John Morley, Mr. H. Herbert Rayner, Mr. Graham Scales Simpson, Prof. W. Thelwall Thomas, Mr. G. Grey Turner, and Mr. Henry Wade, some of whom are easily recognisable in this photograph.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

To be Surg. Lieuts. (D.): R. M. Finlayson, G. G. Cruikshank, T. Hunt, L. M. Hughes, L. B. Osborne, C. J. Finnigan, R. J. M. Andrews, and A. W. Wallace.

ROYAL ARMY MEDICAL CORPS.

Maj. and Bt. Lt.-Col. R. A. Bryden relinquishes the actg. rank of Lt.-Col.

Maj. A. H. McN. Mitchell retires on ret. pay and is granted the rank of Lt.-Col.

Maj. H. C. Todd retires receiving a gratuity.

Capt. M. P. Power relinquishes the actg. rank of Maj.

Capt. W. B. Allen, V.C., retires, receiving a gratuity and is granted the rank of Maj.

RESERVE OF OFFICERS.

Army Dental Corps.—Capt. E. D. Batty, late Gen. List to be Capt.

ROYAL AIR FORCE.

L. P. McCullagh is granted a short-service commission as a Flying Officer.

A. W. Comber is granted a temporary commission as Flight Lt.

ST. MARY'S HOSPITAL MEDICAL SCHOOL: POST-GRADUATE COURSE.

THE week-end post-graduate course at St. Mary's Hospital was well attended, between 100 and 150 medical men from all parts of the country being present at the lectures and demonstrations. There can be no doubt that the course, which was instituted last year is a popular one, for the increase of attendances this year was noticeable. The adoption of some similar scheme by other teaching hospitals might go far to meet the reproach that London schools have little to offer the student when once he has left the school.

On Sept. 29th the first lecture was delivered by Mr. D. C. L. FITZWILLIAMS, the subject being

Early Diagnosis of Cancer of the Breast.

Mr. Fitzwilliams emphasised the importance of immediate pathological investigation in any case where there was the slightest suspicion of malignancy in a swelling of the breast. Malignancy in its earliest stages—just when it was of the utmost importance to detect it—showed no signs or symptoms. At the most, certain features, such as absence of pain, might give some inkling of the condition, but as a rule diagnosis by clinical methods was impossible until many months had elapsed. Records showed that there was a 2½ to 1 chance of all swellings in the breast being malignant. Surgeons were ready to open the abdomen on much less definite possibilities than that; therefore, he urged, every lump in the breast which was not obviously innocent should be considered malignant until by exploratory incision and removal of part of the growth the pathologist was able to make his pronouncement. This examination held out hopes of effective treatment, as cancer in the breast was much more favourably situated for operation than in any other organ. At the same time, he pointed out the difficulty of obtaining the patient's consent in every case to this preliminary operation.

Mr. T. G. STEVENS gave an illuminating discourse on

Prolapse.

Although the condition was called "prolapsus uteri," he showed that the uterus itself had nothing to do with the cause of it. It was really a "sacro-pubic hernia," due to two factors: (1) injuries to the levator ani muscle, and (2) stretching of the transverse cervical ligaments. The cause of these two conditions was invariably labour, and in the vast majority of cases instrumental labour. In applying forceps the head was pulled down, but the cervix was pulled down also with the result that the transverse cervical bands were stretched, often beyond recovery. The patient might show no signs at the time, but eventually prolapse resulted It was not often recognised, he pointed out, that the earliest symptoms of prolapse were those of enteroptosis, such as palpitation and various abdominal disturbances. Rupture of the perineum in itself did not in the least dispose to prolapse; the important factor was damage to the levator ani. Chronic constipation and chronic bronchitic cough were subsidiary factors. In passing, Mr. Stevens mentioned that in a prolapsed uterus, though subjected to friction, the development of malignant growths was almost unknown. The only efficacious treatment for prolapse was operation, or rather a series of operations—amputation of the elongated cervix, anterior and posterior colporrhaphy and perineorrhaphy. This afforded an absolute cure; pessaries might give comfort, but they only predisposed to further prolapse.

Mr. MAYNARD SMITH, discussing

Chronic Pain in the Right Side of the Abdomen,

differentiated between chronic appendicitis and recurrent attacks of acute appendicitis. In the former case the patient showed the symptoms of intestinal toxæmia. There were two chief causes of pain in the right abdomen: (1) chronic infection of the large intestine, and (2) visceroptosis, nor were these mutually exclusive. The first was often associated with bad teeth, and in the patient's stools definite bacteria, not normally present, were found. The best treatment was the Plombières method of lavage, intestinal antiseptics, and careful diet. Visceroptosis was constantly diagnosed as chronic appendicitis, but the removal of the appendix did not effect a cure. The symptoms were gas-distended cæcum with pain on pressure and frequently mobility of the kidney. On examination the cæcum formed a dependent bag, loose and soggy, which was very characteristic. The only effective treatment was excision of kinks, hemicolectomy, or colopexy; short-circuiting of the ileum into the sigmoid was of no value. Other causes of right-sided pain were: (1) Commencing hydronephrosis, shown by X ray of barium injected into pelvis and ureter. (2) Gastric ulcer; here the pains were always definitely associated with food. The fractional test-meal was of great help in diagnosis. (3) Gall-stones; the pain was not definitely associated with food. (4) In women, chronic pyosalpinx and salpingitis of the right side. Many illustrative cases were quoted, and some excellent X ray plates were shown.

Chronic Rheumatic Toxœmia.

Sir WILLIAM WILLCOX pointed out that in cases of arthritis every system of the body should be searched for other evidence of toxæmia, the exciting cause of which was almost certainly an infection. A recent visit to France had provided the speaker with some insight into the different aspects of chronic arthritis that received special attention in different countries. In France the metabolic side of the treatment was uppermost, the diet of arthritics receiving careful consideration, whereas the condition of the mouths and teeth of many such patients in hospital in Paris was neglected. In other respects, however, we had much to learn from our colleagues abroad. Fibrositis, now known to be an objective condition demonstrable by skilled palpation and by radiography, was treated in France by injections of a substance known as lipiodal, which contained 20 per cent. iodine. In this country great advance had been made recently in the use of massage for this condition, with the idea of opening up the lymphatic channels and removing the depositions which were responsible for the fibrositis. Electrical treatment and the application of heat were also useful in certain cases, and some patients derived most benefit from the application of a linseed poultice after painting with iodine. As to the treatment of chronic rheumatic arthritis or rheumatic toxæmia, a focal infection must be searched for and, if possible, eradicated before resort was had to drugs, though the temptation to continue removing foci of infection until there was hardly any part of the patient left must be avoided. As to other methods, reliance should not be placed on one alone, but a judicious combination of many methods, such as vaccine therapy, drugs, Plombières treatment, or spa treatment led to very considerable improvement even in severe cases. Intestinal antiseptics had given no striking results when used by themselves; a mixture of guaiacol carbonate gr. x. and aspirin gr. iii. was sometimes of value. Iodine in collosol form or still better in the form of the French tincture (3 or 4 drops, increasing to 8 or 10 in ℥ ii. water one hour after meals) had given some relief in his hands, and thyroid in small doses (gr. i. t.d.s.) was sometimes useful, and measures directed to the improvement of the general health and spirits of the patient should be tried.

Cœliac Disease.

According to Dr. REGINALD MILLER cœliac disease, usually considered rare, is in fact about as common as abdominal tuberculosis in children. Mal-absorption of fat is the basis of the disease, and the cardinal feature is the discomfort and unhappiness of the untreated child, and the remarkable improvement in its general well-being, appetite, and growth following judicious treatment. The characteristics of the the disease, said Dr. Miller, were the big proportion of fat in the stools, which were large, pale, unformed, offensive, and frequent; a white diarrhœa was often present. Other signs were a large abdomen without any distinguishable mass, anorexia, occasional fever, diminished growth amounting in some cases to cœliac infantilism, and pallor. Dr. Miller demonstrated cases and outlined the course of the disease, which begins during the second year of life and does not clear up without treatment, though at the age of 13 to 15 the capacity for fat digestion tends to improve spontaneously. Mild cases were recognisable in which the excess of fatty acids appeared in the stools mainly in the form of soaps. The stools in these cases were large, coloured, formed, and not particularly offensive. The principle adopted was to start the child on a diet as nearly as possible fat free, to ascertain the percentage of fat in the stools on this diet, and to resist all parental attempts to add fat for a considerable period. Dr. Miller suggested as a skeleton diet for breakfast: fish, egg or tongue, bread (no butter), and syrup or honey, tea with skimmed milk or cocoatina. At 11 A.M. bovril and rusks. Midday, fish, chicken or lean meat, clear jellies, stewed fruit, boiled rice made with skim milk, or Victoria sandwich, with water to drink. Tea a normal meal, without butter, and a supper of skim milk. When fat was increased very gradually, a scrape of butter was the first step, and then puddings made with ordinary milk. Bile-salts might be given; the improvement in the child should be gauged by its general condition and by height rather than by weight.

On Sept. 30th Dr. C. M. Wilson spoke on the

Investigation of Dyspepsia.

He prefaced his lecture by emphasising the difficulties confronting the general practitioner in making a complete investigation of all cases of dyspepsia. A complete investigation involved a bismuth meal and a fractional test-meal as well as careful clinical examination, but obviously this was not feasible in every case. He warned his audience, however, against the error of failing to perform these tests in a certain number of cases where investigation was definitely indicated, an error frequently made owing to lack of time and opportunity. Dyspepsias could be broadly classified into two groups: Those due to spasm of the pylorus caused frequently by some reflex stimulation such as that from the gall-bladder or appendix, and those cases where there was true obstruction or stenosis of pylorus. Dyspepsia might be due to gastric ulcer, duodenal ulcer, gall-stones, or chronic appendix. In doubtful cases X rays and fractional test-meals threw light on the diagnosis of all these when weighed with the clinical evidence, though even with complete investigation it must be acknowledged that the diagnosis of duodenal ulcer was frequently found to have been made erroneously when put to the proof by laparotomy. In the speaker's opinion it was rash to operate on cases of dyspepsia supposed to be due to a chronic appendix unless an acute attack had occurred. He regarded a complete investigation to be necessary in the case of a primary dyspepsia in middle life not relieved by treatment and accompanied by loss of strength and appetite where carcinoma was suspected. Although there might be no filling defect in the X ray, carcinoma should not be entirely excluded; the presence of an achlorhydria in the fractional test-meal and absence of chlorides would help to elucidate the diagnosis. In cases of functional dyspepsia it was important to remember that there were two groups, broadly speaking: (*a*) Those with a dread of cancer or ulcer, when the complete investigation would effect a cure by the reassurance given; (*b*) the hopelessly introspective type of patient who would be made considerably worse by having his attention yet more concentrated on his alimentary system. Errors of secretion and loss of motility were largely responsible for many cases of functional dyspepsia.

Dr. Wilson proceeded to consider the

Treatment of Diabetes by Insulin.

This lecture was particularly valuable from the point of view of the practitioner in its clarification of the use of insulin. Dr. Wilson divided glycosuria, differentiated by the glucose-tolerance test, into renal diabetes—where no treatment is needed—and diabetes mellitus. In diabetes mellitus those cases were classified into Group I. where patients by dieting can be made sugar-free and can keep so on a living diet. These were subdivided into (*a*) patients whose blood-sugar can also be reduced to normal by dieting, and here there was no need for insulin; (*b*) patients in whom the blood-sugar is still raised though the urine is sugar-free. In Group II., in spite of dieting, the urine does not become sugar-free and patients cannot tolerate a living diet. Types (*b*) of Group I. and Group II. cases need insulin. But while the only hope of a patient in Group II. would appear to be to take insulin for the rest of his days, Dr. Wilson held out the hope that by resting the islands of Langerhans by administration of insulin in type (*b*) cases where structural damage had not yet occurred, recovery might subsequently take place. Especially in the acute type of case between 20–30 years of age was the outlook hopeful. He queried whether the reason for failures among patients treated by the Allen diet might not be the fact that in the past, although the urine was sugar-free, the blood-sugar might have remained high. Other cases where insulin would be indicated were those to whom it was necessary to administer an anæsthetic, and patients threatened with diabetic coma.

(*To be concluded.*)

Obituary.

Sir JOHN HALLIDAY CROOM, M.D., LL.D., F.R.C.S., F.R.C.P. Edin.,

EMERITUS PROFESSOR OF MIDWIFERY, UNIVERSITY OF EDINBURGH.

Sir Halliday Croom, who two years ago retired from his professorship of midwifery at Edinburgh, died on Sept. 27th in his seventy-seventh year. Born at Sanquhar, the son of the Rev. David Croom, minister of the Lauriston-place United Free Church in Edinburgh, he was educated at the High School and at the University of Edinburgh, and later studied in London and Paris. The whole of his professional life was devoted to his specialty, midwifery and the diseases of women. On his return to Edinburgh he became assistant to the professor of medicine in the University, and in 1870 was appointed assistant to the professor of midwifery (Prof. A. R. Simpson) and a university tutor, becoming F.R.C.S. Edin. in 1873. For seven years Halliday Croom conducted large tutorial classes in midwifery and gynæcology, and in 1878 was appointed lecturer in obstetrics and gynæcology in the Edinburgh School of Medicine. Elected F.R.C.P. Edin. in 1880, he graduated M.D. two years later. From 1886 to 1901 he had charge of the gynæcological wards in the Royal Infirmary as assistant to the professor of gynæcology and obstetrics. In 1905 he succeeded Sir Alexander Simpson in the chair of midwifery, from which he retired in 1921. Halliday Croom was knighted in 1902, and in the same year was elected president of the British Gynæcological Society. He was the author of several works dealing with his specialty, and was examiner therein in the Royal College and University of Edinburgh, and in the Universities of Oxford and St. Andrews. He was awarded the honorary LL.D. Edin. and M.D. Dublin, and the honorary Fellowship of the American, Belgian, and Leipzig Gynæcological Societies. He was in 1903 President of the Royal College of Surgeons of Edinburgh.

In 1875 Halliday Croom married Anna Isabella, daughter of Mr. Daniel Walker, His Majesty's Inspector of Factories for Scotland. He leaves a son, Dr. David Halliday Croom, well known in Edinburgh, and three daughters.

We hope to publish later a fuller notice of the career of this great teacher and clinician.

Congratulatory Messages.

Many letters, written in unofficial capacities, have been received congratulating us on our Centenary, with permission to publish them in full or part. This permission is here utilised with a deep sense of gratitude.

FOR its century of devoted service to the common health and to the well-being of the medical profession, THE LANCET has made the nation its debtor. As in private duty bound, I acknowledge gratefully its notable efforts to promote the passing of the Medical Acts, and the establishment and expansion of the General Council of Medical Education and Registration, with all the public benefits that have thence been derived.

DONALD MACALISTER,
President, General Medical Council.

The Centenary of THE LANCET—a notable milestone n medical journalism—affords the profession a welcome opportunity of expressing a timely appreciaion of the wholesome influence that it has so constantly exerted. The early and vigorous, sometimes ndeed even dramatic, action of THE LANCET in xposing hospital nepotism and abuses, in organising he profession, in the establishment of the General Medical Council, and in the advocacy of national unds for hospitals and other charitable objects will lways be gratefully remembered as matters of medical istory. But there are other important though less striking ways in which it is constantly directing and aising the standard of medical practice, ethics, and iterature, and the high character of medical ournalism in this country owes much to the wise and independent inspiration of THE LANCET.

HUMPHRY ROLLESTON,
President, Royal College of Physicians of London.

My first literary effort was in the form of a letter o THE LANCET in 1881. I was a student at the ime, and naturally astonished at the consideration f the Editor. When I started practice in 1884, a etired physician gave me the first 30 bound volumes f THE LANCET to assist in filling my bookshelves. I read those volumes with the keenest interest and elish. The slashing articles on nepotism, the fearess criticisms of hospital surgeons, and the ability f Thomas Wakley to conduct his own defence in is libel suits excited my admiration.

I have read the journal regularly throughout my rofessional life. It wins respect by fairness, and onsideration of the youngest as well as the oldest members of the medical profession. It is watchful ver the humdrum daily incidents of general practice s well as the highest scientific affairs of medicine s a whole. The leaders and reviews are to-day rank and fair; interest in the welfare of the profesion is unlimited, and the journal has an instinctive oathing of quackery and jobbery.

In style, production, editorial skill, and judgment THE LANCET, to my mind, is the best medical journal n the world.

JOHN BLAND-SUTTON,
President, Royal College of Surgeons of England.

The Centenary of THE LANCET is, indeed, an epochmaking event in medical journalism, "the dividing of time." All the world over, through a long series of ears, your paper has represented an advanced policy n medical education, in sanitary science, and in reventive medicine. Many substantial and fareaching reforms have followed directly upon your ane and persistent advocacy, and in this way THE ANCET has proved itself not only an invaluable urrent exponent of medicine proper, but also of its wise application to the betterment of man's estate nd its good governance.

But something more may, I think, be truthfully aid. THE LANCET has been remarkably scientific in its insight and apprehension, and studiously moderate and judicial in its exposition. It has, of course, often been vigorous in expression and critical in judgment, but there has been a disinterestedness, stability, courtesy, and dignity in its pronouncements which has reflected the best medical thought and spirit of the time. It has thus faithfully represented the *science* as well as the *art* of medicine.

So it comes about that the substance of your reward for a hundred years of achievement is the continued loyalty, confidence, and appreciation of innumerable medical practitioners, officers in all branches of the public health service, scientific workers, and even patients, in this country and in many parts of the world.

GEORGE NEWMAN,
Chief Medical Officer, Ministry of Health.

Hearty congratulations to THE LANCET on attaining its Centenary. I know of no medical journal which has attained such celebrity, and which meets the wants of English-speaking medical men better. That THE LANCET may still continue to flourish and to instruct is my earnest hope.

JOSEPH CHAMBERS, C.B., C.M.G.,
Medical Director-General, Navy.

On the occasion of the Centenary of THE LANCET will you permit me to offer you my sincere congratulations, and to express the confident hope that the Journal, over which you preside so ably, may maintain throughout its second century the high repute acquired in its first?

You will doubtless receive many letters assuring you of the esteem in which THE LANCET is held by the profession, but I may perhaps be allowed to refer specially to the debt which the Medical Departments of the Services owe to it. Those whom duty calls from station to station, and often to service overseas in isolated posts, would indeed feel themselves divorced from medical progress were it not for the weekly study of THE LANCET or some sister Journal, and such as make this study a habit need never fear that they are getting "rusty" or out of date.

In spite of the wide extension of medical experience and research, and the spread of specialisation, the selection and distribution of material in THE LANCET is so well balanced that one rarely reads a number without acquiring information which one feels to be of real and personal value. The specialist must, it is true, consult in addition his own journals, but, were he to limit his reading to those, he would soon become narrow in his outlook, and his progress would be hampered in many directions.

The R.A.M. Corps owes THE LANCET a special debt in respect of its patriotic action during the war in sparing no effort to put on record, in convenient form, the knowledge, new or scattered, which might be of service to those responsible for the care of the sick and wounded. This was of inestimable value, and was a direct and very potent factor in obtaining the results which are, I think, generally acknowledged to have been excellent.

THE LANCET has always supported the best interests of the Services, and has aided them in their own efforts to maintain their efficiency and professional standing at a high level. I can assure you that it has many readers in these Services who are most grateful to it, and who would desire to join me in congratulating it on its Centenary, and in wishing it continued prosperity.

W. B. LEISHMAN, Lieut.-General,
Director-General, Army Medical Department.

May I send you my personal congratulations on the Centenary of THE LANCET, which is recognised in India, as at home, as one of the greatest of the medical journals, and express my hope that it may continue for another hundred years to represent all that is best in British medicine?

JOSEPH B. SMITH,
President, India Office Medical Board.

Il y a cent ans, la presse médicale ne comptait dans chaque pays qu'un petit nombre d'organes. Depuis, ce nombre s'est considerablement multiplié. Mais THE LANCET, entre tous, a toujours maintenu son rang honorable et est resté l'un des plus réputés des journaux britanniques et même des journaux du monde entier.

C'est un grand honneur pour la médecine française de figurer régulièrement dans les colonnes de ce journal estimé, sous la rubrique du French Supplement. En son nom, nous adressons à la rédaction de THE LANCET nos très vifs remerciements et nos meilleurs vœux pour la prospérité de la toujours jeune centenaire.

CH. ACHARD,
Professeur à l'Université de Paris.

CH. FLANDIN,
Médecin des Hôpitaux de Paris.

Under the guidance of the Wakleys THE LANCET established in medicine its great tradition. Change in editorship or ownership has not at any period introduced variation in policy. To-day, as throughout our generation, in ethics as well as in medicine, THE LANCET stands for whatsoever is good and sound. We trust it and feel secure. When it inaugurates or supports any movement we know it has the highest interests of the profession at heart. Long may it continue to represent and to give to the world the best in British medicine.

J. GEORGE ADAMI,
Vice-Chancellor, the University of Liverpool.

THE LANCET on its centenary carries me back to times long ago. From THE LANCET blew one of the breezes which wafted me into the profession of medicine. Of my five medical uncles (including a "great" one), two lived near my home; and I rejoiced in the old-fashioned surgery, and ransacked the aromatic jars and drawers, some of them still bearing quaint old labels, such as "mummy powder," "thorn of the Unicorn," "crabs eyes," and so on. Amid these provocative stores lay dusty files of the early LANCET; some rather fusty volumes dating from its very birth. At the age of 9 or 10 for many an hour I would sit quiet with these volumes on my lap—their columns at that time half grown, rather sallow in complexion, and not very clear in print. Yet I recall the fascination of the figured woodcuts of the mystic convolutions of the human brain; and, more intelligibly, the interesting mechanism of the hip-joint; but the old Adam, born in us all, found a still livelier joy in the pungent controversies in which during those years the journal was engaged. There was a foretaste of battle in the editor's very name; and in those generations literary brickbats were hurled about by commentators and editors with a hearty pugnacity unknown in our milder day. Mr. Wakley was not a bit afraid even of the majestic Royal Society or of the noble Marquess, its President. As the Chicken remarked of Mr. Dombey, "Stiff a cove as he was, it was within the resources of science to double him up with a well-directed blow in the waistcoat." Wakley vigorously attacked nepotism, buckram plausibilities in high places, and bumbledoms. He defended the club doctor, and fought with remarkable foresight for public health and the prevention of disease. In particular he was revolted by the unchecked, almost unheeded, ravages of syphilis, and stripped its disguises from a malady which seems then to have been even more rampant than in our own time, although its neurological manifestations were then unrecognised.

I am told that the deep-sea fisherman keeps his codfish alive in a salt-water cistern in the boat, so that they may come fresh to market; but these fishes, in this respect, quite like human beings, when they find themselves in snug quarters are apt to take their ease; and so after all come to table with stale flesh. To keep them alert, therefore, the fisherman puts with them in the tank a "catfish," as I understand, a very irascible animal, whose ways are disturbing to the repose of higher circles, and the codfish are so continually exercised by this pertinacious foe that their flesh is kept in good condition. No parable has four legs; I would not compare Mr. Wakley with this malevolent fish, but I do say that the inhuman torpor of the eighteenth century was then far from dispelled or much disturbed, and that a fearless reformer was sadly needed. As Wakley himself said, he did not intend to refrain from remonstrance or even vituperation until in the affairs to which I have alluded, as also in food adulteration, in the maladministration of military medicine, in the Poor-law, in lunacy, and in the crudities of judicial psychology, sorely needed reforms were at least set on foot. The easy classes were, of course, furious, but on cursorily turning over the old volumes again I find after all the editor's vituperations and sarcasms, if biting enough, were less naughty than I had supposed. Not only so, but THE LANCET's main work, the shedding of daylight on hospital management and teaching, the publications of lectures by learned physicians and surgeons, and of scientific papers, was indeed an inestimable boon to the general practitioner and to the public.

If in later years THE LANCET has been able to work in an air of more amenity and on amicable terms with officials, publicists, and journalists, it has been the better able still to advocate the vital reforms fought for in its early days by its fathers, and to contend with more good temper but no less fervour and sincerity for causes as entirely farsighted and beneficent. For the ideals of the early LANCET ar as yet far from their accomplishment.

CLIFFORD ALLBUTT,
Regius Professor of Physic, University of Cambridge.

For the long period of 100 years THE LANCET has been the weekly exponent of new knowledge gained in the science and art of British medicine. Moreover, it has maintained without flinching th necessity for the highest standard of character conduct, and attainment in the whole medica profession, and has contended without fear or favou for the mutual and reciprocal obligations of th doctor and the public. For these very real service to the body-politic THE LANCET deserves heart recognition at its forthcoming Centenary.

THOMAS BARLOW,
Late President, Royal College of Physicians of London.

Please accept my sincere and warm congratulation on the Centenary of THE LANCET. It seems to m that it has not only maintained its ancient reputa tion, but has advanced and progressed as its year have increased. All good wishes for its futur career.

ANTHONY A. BOWLBY,
Past President, Royal College of Surgeons, England.

Best congratulations on the Centenary of TH LANCET. It has fought good fights for high profes sional standards and sane legislation.

WATSON CHEYNE,
Late President, Royal College of Surgeons of England.

I send you my heartiest congratulations on th hundredth anniversary of the founding of TH LANCET. The journal has had a most benefici effect on the progress of medicine during that lo period, and I may also add that its influence h done much to advance both medical education a raise the general status of the medical profession.

W. S. CHURCH,
Late President, Royal College of Physicians of London.

The celebration of your Centenary brings to mi how greatly the nation in general, and the medic profession in particular, are in your debt. You ha ever espoused learning, and stood for a high standa of professional achievement and public servic Your criticism has been fearless, yet always co structive and encouraging. Your influence has be on the side of liberty and professional unity. In the larger fields of conquest and usefulness which lie before it, the medical profession will find in you the same vision, courage, and single-minded purpose. We owe you much; we rejoice in your strength and wish you God speed.

DAWSON OF PENN,
President, Medical Society of London.

All who care for the progress of medicine will unite in congratulating THE LANCET upon this centennial birthday, and they will wish that its fine tradition and influence, so well deserved and secured, may be maintained throughout the second century upon which it now enters. THE LANCET has rendered great services of many kinds to the best interests of the public and of the profession, and of these the history of medical education and practice will always preserve the record. Not least among these has been its constant aid to the advancement of the medical sciences in all their parts, and to the diffusion of new knowledge for the service of all. Posterity will be born in heavy debt to THE LANCET. The best wish for THE LANCET at this Centenary is that the debt already incurred may be heavily increased.

WALTER FLETCHER,
Secretary, Medical Research Council.

Good wine needs no bush, and a journal which has attained to its hundredth birthday must be held to have justified itself to the full. Since the publication of that slim first volume THE LANCET has had to adapt itself to many changes of outlook in matters medical, and to shifting journalistic fashions. Dramatic criticisms and chess problems no longer figure in its pages, nor do we find descriptions of highly "genteel surgical audiences," composed of "gentlemen of cultivated manners and good education" who hang upon the words of a great surgeon—a description somewhat discounted by the account, furnished to a later number by a correspondent from Edinburgh, of the half hour preceding the entry of the lecturer. The edge of THE LANCET was very keen in those days, and it cut deeply.

A somewhat truculent youth followed by a maturity of increasing esteem, and now in mellow age, the journal shows no signs of diminished vigour. It afforded a vehicle for the views and aims of that great reformer who was its founder and first editor, and has ever been in the forefront of the battle for progress; as witness, the part which it played in securing medical registration, better methods of appointment of members of hospital staffs, and many other reforms. Nor has it ever failed to carry out its original purpose—namely, to bring the teaching of the medical schools to the knowledge of the profession at large. THE LANCET goes all over the world, and has ever been ready to publish work in scientific medicine, even when such work deals with subjects which make no wide appeal. If only for this reason the journal has earned the gratitude of all who have at heart the advancement of medical science and the progress of the healing art.

The whole profession will join in congratulation to the proprietors, and to the present Editor upon the occasion of its Centenary, and in the hope that its second century may still further enhance its usefulness and fame.

ARCHIBALD E. GARROD,
Regius Professor of Medicine, University of Oxford.

Amongst odd volumes left me by Marcus Beck is an octavo, the third edition of Vol. I. of THE LANCET, 1823–4, published in 1826. Once it belonged to Thomas Hunter, Esq., Surgeon *Grampus*, Royal Seamen's Hospital Ship, and afterwards to Tom Cooke, above whose name is written in a female hand, "Fanny Hunter, 1828—when this you see remember me when I am far away."

Occasionally I browse amongst the lectures of Abernethy and Astley Cooper, or gloat over some of its "hot stuff." For it was a pugnacious age. In these earliest years of its existence, the Editor says: "It is true we have been loaded with the vituperation of the vulgar and ignorant, but this is a kind of tax which everyone who aims at the public good must be content to pay"; and we may add that he was well able to pay with interest.

The Introduction, dated Dec. 8th, 1825, summarises the reasons for starting THE LANCET and the successes already attained. The primary purpose was *generally* of "communicating to the profession the earliest notice of every passing event in the medical and surgical world; and *especially* of cultivating the vast and hitherto unexplored field of inquiry which the great hospitals of the metropolis presented to our view." Another was the publication of lectures. A modicum of "polite literature and news of the day" had at first been introduced, but this was soon crowded out by the unexpected mass of medical material available. After two years the vigorous predecessors of the present vigorous Editor boasted of the instantaneous success of their labours. "Imbecility, in many instances, was banished from our hospitals, abuses were corrected, improvements multiplied, and a new and salutary impulse was imparted to the medical schools of the metropolis. The publication of lectures and hospital cases formed a new and distinguished feature in the annals of science, and, as might have been anticipated, was vehemently opposed by the parties most likely to suffer from the innovation."

This is the spirit, mellowed more and more by time, that has inspired THE LANCET during the wonderful first century of its existence. It is true that, as its mascot, the lancet is now only found in museums, we no longer look for cutting satire or pungent phrases in our weekly number; but we are sure to find the latest news, a full report of new scientific inquiries, healthy criticism in the correspondence columns, inspiring and instructive leading articles, and the restrained though merciless exposure of abuses.

It shows no sign of senility. Therefore, though I have long since hung my lyre upon the wall, I still read my LANCET regularly, feeling sure that it will always be up to date, and that it will continue to exert a wholesome influence upon the profession as it has consistently done in the past.

RICKMAN J. GODLEE,
Late President, Royal College of Surgeons of England.

Considering the multitude of periodicals it is rare for one to reach its Centenary. ALL the medical profession are proud that their paper, THE LANCET, should have done this, but it has an additional honour, for during the whole of the hundred years it has been an example of what a really first-class journal should be. Its very name is appropriate, for it has exposed numberless abuses and has always striven to improve the health of the community. THE LANCET Analytical Sanitary Commission led to Acts of Parliament protecting consumers from adulteration of food, and many other examples might be given of this newspaper's work for the good of the nation. Likewise it has continually upheld everything which might enhance the standing of the medical profession; quite at random I looked at a number of THE LANCET of 80 years ago and found the editor maintaining that medicine is a profession, not a trade. It has throughout a century been fearless both in its exposure of charlatans, quacks, and advertisers, and in its support of really good medical work. The position which our profession holds in the estimation of the public is largely due to THE LANCET. Those responsible for its conduct have ever kept in view the desire of its founder to disseminate medical knowledge. They have believed that, as Johnson said, newspapers are "rivulets of intelligence, which are continually trickling among us, which everyone may catch, and of which everyone partakes." The original articles and the clinical lectures and reports, which have appeared in THE LANCET, form a complete history of medicine and the allied sciences for a hundred years. Everyone must wish its second century to be exactly like its first and hope that, when this island is excavated many thousands of years hence, the explorers will come across volumes of THE LANCET.

W. HALE-WHITE,
President of the Royal Society of Medicine.

I cannot let slip the opportunity of congratulating you on the remarkable success of THE LANCET in recent years. During the 17 years that I was editor of *Brain*, I watched with admiration the way in which the journal met the many difficult situations which arose, and I am always grateful for the interest that has been shown in the progress of modern neurology.

HENRY HEAD,
Consulting Physician, London Hospital.

I am anxious to join with the large number of your friends who will send you congratulations upon the Centenary of your journal. Of the many important contributions to the progress and to the dignity of our profession made by THE LANCET, through the attitude it has adopted at times of crisis, others can testify more specifically than I can. But I wish to add a word of praise for the invariably high standard that THE LANCET has maintained in regard to the scientific articles appearing in its columns. As the premier journal for giving expression to advances in clinical and pathological work, it has been of the utmost service to medicine to know that this high standard could be relied upon at all times. The columns of THE LANCET have always seemed to me to mirror the best in the history of medical progress.

THOMAS HORDER,
Physician, St. Bartholomew's Hospital.

The Centenary of THE LANCET is indeed a great occasion. What a wonderful record of work it represents! It has always stood for what is best in our profession. May it long continue its honourable and enlightened career!

ROBERT JONES,
Consulting Orthopædic Surgeon, Royal Infirmary, Liverpool.

I have been a weekly debtor to THE LANCET for considerably more than 30 years and hope my account may continue for years yet. As I glance over the list of contents with each fresh issue, with a sneaking hope that there may not be so many columns that must be read—if one would keep abreast with all forward medical movements—I am usually disappointed; each number contains articles that one cannot afford to let pass unnoted.

There cannot be a shadow of doubt that the medical press of a country is a sure index to the state of medicine in that country; nor is it less true that a country's place in the van of medical progress depends to a very large extent on the light and leading given by its medical press. In these respects British medical men may regard THE LANCET with pride.

THE LANCET has always welcomed to its pages the younger men who had something new to say—something which, although remote from practice, yet went to laying the art of healing on a foundation of sound knowledge. In this respect, too, I am deeply indebted to THE LANCET, as so many other men have been. I wish THE LANCET a continued prosperity.

ARTHUR KEITH,
Conservator, Hunterian Museum, Royal College of Surgeons of England.

It is impossible for me to let the Centenary of THE LANCET go by unnoticed. The paper has done wonderful work for the profession, thanks to the way in which its objects have been preserved and its career directed for so long. I trust that it may flourish for many years to come.

W. ARBUTHNOT LANE,
Consulting Surgeon, Guy's Hospital.

I congratulate you and your colleagues upon the Centenary of THE LANCET. It is satisfactory to find that the journal still pursues a course characterised by the virility of youth, guided by the wisdom of a hundred years' experience. The debt of medicine to the journal cannot be computed, and it is not possible to realise what British medicine would be without THE LANCET. Wishing your famous journal a continued career of usefulness and fame,

J. MACKENZIE,
Director, Institute Clinical Research, St. Andrews.

The passage of a century at once excites the imagination, appeals to the memory, and demands respect. The advent of the Centenary of THE LANCET furnishes its readers with the opportunity for indulgence in each of these directions. A review of the volumes may well excite speculation as to the future, while at the same time it recalls the history of perhaps the most splendid and fruitful period in the science of medicine, covering as it does the rise and development of preventive medicine, the practical application of the great discoveries in the domain of pathology, and the advance of surgery to an extent surpassing the wildest dreams of our ancestors. Of only less interest is the continuous record of the changes and developments of professional policy and ethics, and the host of personal memories which are aroused. In each and all these directions THE LANCET may proudly claim that it has taken a part the value and influence of which cannot be over-estimated.

Success such as has attended the conduct of THE LANCET and the international repute which it enjoys call for congratulation rather than praise, while it demands the gratitude of those whose work the journal has set forth and disseminated; yet, it must be stated that the paper is a possession of which the profession of this country is justly proud. A glance at the early history shows that the path struck out by the projectors of THE LANCET was not always easy and straightforward, but the storms and difficulties which have had to be encountered by successive Editors have been met with such a degree of skill and judgment that the confidence and respect of its readers have never been endangered. The early career of the journal considered in relation to the position it holds to-day awakens a comparison between its life-history and that of many of our greatest public men. Launched in a stormy sea, and renouncing novel and advanced views not palatable to all, it steadily grew in public estimation and influence until it reached the position of eminence it still occupies to-day. It starts upon its second century with the good wishes and gratitude of its readers, and a hearty desire that the second century may be still more successful than the first.

G. H. MAKINS,
Late President, Royal College of Surgeons of England.

It is an easy matter to celebrate the foundation, the continuity of existence, and the uninterrupted progress for a 100 years of any institution or organisation, by a festival dinner or other convivial entertainment; but when the occasion is the centenary anniversary of a great journal like THE LANCET something more is necessary to do it suitable honour and justice, and to give proper expression to a hope that the future career may prove to be not less successful than its past history. This something is the confidence with which it can be truthfully asserted that the projects with which THE LANCET set out at its foundation, good as they were in themselves, have in great degree been realised and accomplished; that with its growth in years the growth in results has been proportionate or even greater; and that those to whom has been entrusted the duty of carrying on the work of the journal have loyally adhered to and developed the ideals of its Founder. Such a review can only be made after careful personal examination of the pages of THE LANCET itself from its commencement, or by the perusal of a good historical account such as Sprigge's "Life and Times of Thomas Wakley," supplemented by a personal acquaintance with THE LANCET subsequent to the period at which the history terminated.

In 1823 when THE LANCET first appeared, one medical journal at least, the *London Medical and Physical Journal*, had been in existence for 24 years. It ran from 1799 to 1833, and then ceased to exist. Another medical journal, the *London Medical and Surgical Spectator*, first published in 1808–09, very soon came to an end. Whether any other medical journal had preceded THE LANCET I do not know, but at any rate the Founder and Editor of that journal was able to state in the Preface to No. 1, Volume I., the following: "There has not hitherto existed a work which would convey to the public, and to distant practitioners as well as to students in medicine and surgery, reports of the Metropolitan Hospital lectures." Such information it was declared to be the intention of the new work to supply in the most ample manner; and in addition to lectures it was proposed to give under the head, "Medical and Surgical Intelligence," a correct description of all the important cases that may occur, whether in England or on any part of the civilised Continent. It was also announced in the same preface that it was intended to convey to country practitioners, and to medical and surgical practitioners in London who were unable to attend personally at the hospitals, as well as to the numerous classes of students whether here or in distant universities, the means of ascertaining the progress of medical science. In the sixth number of THE LANCET was started under the title "Hospital Reports" a regular series of records of the proceedings in hospital practice, and this was long continued under the heading, "A Mirror of Hospital Practice."

Other objects which the Editor set out to accomplish were improvements in the education, discipline, and the social life and habits of medical students; to afford opportunities for the rank-and-file of general practitioners to get and remain in intellectual touch with the leaders and teachers of the profession; and to suppress the various abuses in the several departments of the profession, in colleges, hospitals, and medical schools, which existed prior to, and for some time after, the birth of THE LANCET. There are many still living who for the last half or more of the centenary have been regular readers of THE LANCET, and who can of their own knowledge bear witness to the courage and perseverance with which these reforms have been accomplished, and to the constancy and thoroughness with which other developments have been effected. THE LANCET provides liberally for the publication of hospital lectures, collegiate lectures, the clinical reports of cases, the progress in tropical medicine and in public health, as well as of post-graduate lectures and clinical and laboratory notes. It furnishes helpful commentaries on the collateral sciences, and on new experimental and scientific investigations. Its leading articles, annotations, and critical commentaries are very useful and instructive. It keeps its readers informed on medical and surgical literature through its well-balanced reviews of books and other new publications. It keeps an eye on the medical services at home and abroad, and, so far as it can, furthers the interests and well-being of their members. It discusses judiciously questions concerning preliminary and intermediate education and the medical curriculum in general; and it affords the parents of intending medical students (and the students themselves) great assistance in ascertaining what is required and expected of their sons on entering the study of medicine; it has also been of outstanding use to the General Medical Council itself in more ways than one. And, not the least of its services, THE LANCET makes known the merits of medical institutions, and the development, organisation, and coöperation of professional associations and societies. It gives publicity to the needs of medical charities, and in a variety of ways renders useful information to the public as well as to the profession itself. This enumeration, by no means complete, of conspicuous features of THE LANCET, supplies a wide basis upon which to found a pæan of congratulation for a great record of excellent work admirably done.

HENRY MORRIS,
Past President, Royal College of Surgeons of England.

THE LANCET is the friend of every man in the profession. The story of its early years of struggle against privileges which were bought rather than earned, against "hole and corner" surgery, against all the heavy abuses under which our profession suffered a century ago, has been told by its present Editor in a volume of the deepest interest. Wakley was responsible for the publication of the lectures of Abernethy, and of Sir Astley Cooper. Every author who is fortunate enough to secure a place in the pages of THE LANCET to-day will proudly regard himself as in the direct literary succession to these men, among the greatest our country has produced. Wakley stood for individual and professional rights against the encroachments made on them by those within and without our ranks. Idols were shattered and at the moment no little harm was done. But the permanent good was immeasurably greater than the harm. From that day to the present time the journal has taken the leading part in this country in upholding the duties and responsibilities of the profession in its relation to the public, and no less in informing the public of the professional view of matters concerning the welfare of the people.

Regarded either as a purely medical journal, or as an instrument for the instruction both of the profession and the public upon questions that closely affect them both, THE LANCET stands, I am convinced, foremost in the estimation of us all. Long may it remain so.

BERKELEY MOYNIHAN,
Senior Vice-President, Royal College of Surgeons of England.

Having been associated with THE LANCET for many years as contributor and reader, and having had the last Editor of the name of Wakley as a personal friend and contemporary, I hope I may not be regarded as presumptuous if I ask permission to unite my congratulations, no doubt with very many others, on the occasion of the Centenary of that journal, which has so pre-eminently represented the medical profession and reflected its best ideals both personal and social. Its utility in stabilising medical knowledge carries with it an indebtedness on the part of the public which cannot well be estimated.

Long may it continue the good work.

DAV. NICOLSON,
Lord Chancellor's Visitor in Lunacy (retired).

Au moment où THE LANCET se prépare à commémorer la centenaire de sa fondation, je me fais un devoir et me donne la joie d'adresser à son Comité de Rédaction et à son vaillant Directeur mes plus chaudes félicitations.

Le monde médical tout entier participera à ce jubilé et sera de cœur avec les confrères anglais réunis pour fêter cet anniversaire, et inaugurer en même temps le deuxième centenaire de leur grand périodique professionnel. Car il n'est pas douteux que le robuste journal qui honore depuis vingt lustres la science médicale britannique, continuera à marcher allègrement dans la voie glorieux qu'il a suivie pour le plus grand bien de la corporation.

Tous ceux qui lisent THE LANCET seront d'accord, je pense, pour reconnaître qu'elle a été le plus valeureux champion des revendications professionelles en Angleterre, au même temps qu'elle apportait à la diffusion des travaux scientifiques de ses compatriotes l'appui de ses constants efforts et la puissance de sa vaste publicité. Nul organe plus que THE LANCET n'a lutté courageusement pour assurer le relèvement et l'organisation de la profession médicale ; je ne crois pas me tromper en estimant que le General Medical Council, frère aîné de notre Fédération Médicale Belge, est le fruit de campagnes où votre journal fut toujours aux avant-postes. Et ce ne sera pas son moindre titre de gloire, par exemple, que d'avoir contribué d'une manière prépondérante à l'équité des nominations hospitalières qui jadis étaient trop souvent, en Angleterre comme dans d'autres pays, livrés au hasard ou à l'arbitraire.

Je n'ai pas la fatuité, en vous écrivant ces quelques mots, de vouloir définir le rôle important que les collaborateurs de THE LANCET ont rempli au cours des cent premières années de son existence. Mais je suis certain que dans un pays qui doit beaucoup de sa grandeur à l'énergie individuelle et à l'initiative privée de ses citoyens, on appréciera hautement, comme on le fait partout l'influence capitale de vos rédactions dans l'institution si noble et si généreuse des National Hospital Funds. Que de malheureux doivent à l'inspiration et constant dévoûment de votre journal d'avoir trouvé dans les établissements hospitaliers soutenus par le public anglais, la sécurité d'un home comfortable et le secours de soins éclairés et minutieux qu'ils n'eussent pu recevoir chez eux !

"Travail, justice, générosité" pourrait être votre devise. En Belgique nous n'oublierons jamais que votre vaillant périodique contribua largement à la récolte des fonds réunis en Angleterre pendant la guerre récente en faveur des médecins et pharmaciens belges sinistrés. J'ai eu le bonheur d'aller remercier personellement nos confrères anglais de leur touchante et effective solidarité ; je saisis l'occasion que m'offre cette lettre pour vous redire une fois de plus notre gratitude. Je suis convaincu de traduire les sentiments mêlés d'admiration et de reconnaissance du corps médical belge tout entier en félicitant chaleureusement THE LANCET à propos de son jubilé.

Veuillez faire part de nos congratulations à vos collègues de la Rédaction, et recevoir pour vous et pour eux l'expression de ma sympathie personelle at de ma fervents considération.

V. PÉCHÈRE,
Professor of Medicine in the University of Brussels.
Bruxelles, le 15 Septembre, 1923.

May I be allowed to congratulate the proprietors of your illustrious journal and yourself, as its present editor, on the Centenary of its foundation which is about to be celebrated? THE LANCET may well be proud of its century of effort in the quest of human advancement. For fully half that time I have read its numbers and so have felt myself kept in constant touch with all that is best in medicine and with the most sane views on all the phases of its progress. Whilst faithfully chronicling the changes and discoveries in medicine and the allied sciences, THE LANCET in its editorial columns has not failed "to point a moral or adorn a tale," and so to present a fascinating and an inspiring review of the history of the healing art in its continuous making. That another century of high achievement await you is the sincere hope of

R. DOUGLAS POWELL,
Late President, Royal College of Physicians of London.

The surgical history of the eighteenth and the first half of the nineteenth century is full of interest, for it marks the rise of scientific surgery and the beginning of systematised teaching of the subject. John Hunter was the originator of scientific surgery in England, and he owed little or nothing to foreign sources. He was the founder of a great school whose influence was felt with increasing force by each generation of surgeons until the work of Lister explained much that Hunter had foreseen but was unable to explain. The desire for systematic teaching appears to have risen from the lower ranks of the profession. The leaven had been working for some time, as is shown by the "dispensary battles" of a previous generation, but the desire died down until the lean years at the beginning of the last century, resulting from the long wars in which the country had been engaged, led many members of the medical profession to desire payment for advice rather than for medicine. Before they could charge for advice, however, it was necessary that they should have been better taught than by the older methods which had remained unchanged for centuries—a rough apprenticeship followed by the practice of pure empiricism without any previous test of knowledge. The outcome of the increased desire for education was the passing of the Apothecary's Act of 1815. The Act required that a person who was going to practise medicine must be licensed, and before he could be licensed must show that he had received a fair general education and had acquired at least the rudiments of professional knowledge. Many schools arose at once in London to provide the requisite teaching, some attached to the large hospitals of the metropolis, others private schools conducted by men of great ability who for one reason or another had failed to secure a position on the staff of the hospital where they had themselves been pupils. The rivalry between the hospital and private schools was bitter and unscrupulous. The younger men at the private schools were in many cases the better teachers, and as their entire livelihood depended on the success of their teaching they gave of their best; the teachers at the hospital schools were better organised and held influential positions at the licensing boards, where they were often examiners. There is no doubt that they used their powers tyrannically; the private schools were suppressed or compelled to throw in their lot with the hospital teachers, and there only remained a miserable class of "grinders," who lingered on until quite recent times. During the greater part of this period there was no professional journalism as distinct from a medical press dealing entirely with medicine in its scientific aspect, and polemics were carried out by flysheets, open letters, and pamphlets, as is still the custom at the Universities of Oxford and Cambridge. The appearance of THE LANCET altered the whole aspect of things, and threw light on many dark corners of contemporary surgical practice.

For centuries it had been the custom for surgeons attached to the hospitals to bring their apprentices with them to see how patients should be treated. At first they merely received the ordinary apprenticeship fee like other masters of city craft, but in process of time it was found that apprentices to hospital surgeons acquired greater privileges than were given those whose masters did not hold such a post. The hospital surgeons were not slow to take advantage of this, and they demanded much larger apprenticeship fees than was usual; or else, as was natural, they took intelligent members of their own family into their service. The result was not difficult to foresee. The pupil succeeded his master at the hospital, and in process of time he did so occasionally to the exclusion of better men. The early numbers of THE LANCET were devoted to the destruction of this system. Violent attacks were made upon individuals, for it was thought that deeply-rooted evils required rough measures to expose and deal with them. But the methods adopted cannot be judged by the standards of to-day. People in the first half of the nineteenth century were much more outspoken than they are at present, men hated each other with undisguised hatred, habits were coarse, feeding was gross, and tempers were short, so that what now appears to us brutal was not then considered outrageous. Principles were attacked as well as individuals, and in the end THE LANCET was found to have done the profession good and to have raised the general tone by its rough attacks. The amelioration of manners led gradually to a softening of tone in THE LANCET, but did not in any way lead to a deviation from the path of reform which had been marked out for it by its Founder.

D'ARCY POWER,
Consulting Surgeon, St. Bartholomew's Hospital.

A hundred years of public-spirited service to the profession finds THE LANCET still with undulled point, bright and trenchant as ever! Its keenness, as that of its synonym, has often boldly and wisely brought relief from mischief threatening the general health, and given issue to much laudable matter. On occasion it has, most usefully, resigned itself to pricking a bubble. On it the medical man relies, and with him it goes Britain's world over, a means to his skill, an aid to his science, a mirror and epitome of his experience. Able and beneficent the hands that have directed it so successfully; in all earnestness, even thus may it continue, indispensable, untarnished, and fine of temper as in the past and present, so through the century to come.

C. S. SHERRINGTON,
President of the Royal Society.

On the eve of the completion of its Centenary I should like to offer through you my congratulations on the high reputation which THE LANCET has won, and my best wishes for its continued influence and authority. From inside knowledge and from independent observation I am confident that the Editors, all of whom I have known personally, except the first, have throughout striven to promote the welfare, advancement, and prestige of the medical profession, and the improvement and safety of the public health.

JOHN TWEEDY,
Late President, Royal College of Surgeons of England.

The real significance of a centenary lies in this: that only that which is superlatively well done—and I may add done by idealists—can last a hundred years. And so when the centenary comes, it is an invitation to remind ourselves that we are debtors, to think for an instant of those to whom we are indebted, and to bear in mind those words of kindliest satire which tell us that those who do good by stealth (in editors' rooms and elsewhere) are delighted to be afterwards found out. Others who are less absorbed in their individual task, and therefore more constant readers, will more fitly praise THE LANCET as an organ of scientific medical instruction. They will call THE LANCET worthy to be loved because it has kept generations of readers in closest touch with the advances of medicine; because only the best work has been placed before them and the inferior has been excluded from its columns. And they will commend it because the editorial comment has continuously distinguished between what is ephemeral and makes a bid for notice and what is solid and of lasting value; and because it has always extended a welcome to the future and decently buried the past.

I leave all this to render thanks for the unforgettable services THE LANCET has rendered to its scientific contributors. My personal indebtedness to it is of the very heaviest. Let me resume it under three headings:—

1. Practically all my research work has found first publication in its columns, and it has never spared itself heavy expense. It has permitted me heavy proof corrections which I have never yet learned how to avoid. And, above all, when the cause of antityphoid inoculation was, after the Boer War, making very heavy weather it published for me a special supplement, comprising 24 statistical records, with much comment and critical matter.

2. There has been given to all my papers very careful and valuable proof-reading. Every fellow-contributor to THE LANCET knows what the quality of that proof-reading is.

3. THE LANCET is, when a question of medical science is at stake, not only lavish, but it has on such occasions the quality of moral courage—that quality without which every other virtue can be written off as inoperative.

ALMROTH E. WRIGHT,
Principal, Institute of Pathology, St. Mary's Hospital.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The University Grants Committee have decided to make an additional annual grant to the University of £30,000 to provide for pensions and stipends, for the maintenance of the library, and the extension of extra-mural work and on the women's colleges. For the last purpose £4000 per annum will be definitely allocated for the next ten years.

UNIVERSITY OF LONDON.—The Semon Lecture for the year 1922–23, entitled the Advancement of Laryngology, will be given at the House of the Royal Society of Medicine, 1, Wimpole-street, W. 1, by Dr. Arthur Logan Turner, on Nov. 1st, at 5 P.M. The chair will be taken by Mr. Charles A. Parker. Admission is free, without ticket.

University College.—Among the public lectures arranged for the session 1923–24 are the following: On Oct. 10th, at 5 P.M., a public lecture by Mr. Morris Ginsberg will be given on the Sociological Work of the late Dr. W. H. R. Rivers, and at 7 P.M. Mr. A. H. Barker will discuss the Heating Equipment of a Small House. On Oct. 15th, at 5 P.M., Miss I. C. Ward will lecture on the Application of Phonetics to the Curing of Speech Defects. On Oct. 16th, at 5.30 P.M., Prof. A. V. Hill, F.R.S., will give a public inaugural lecture on the Present Tendencies and Future Compass of Physiological Science, Prof. E. H. Starling, F.R.S., presiding. On Oct. 23rd, at 5.30 P.M., Mr. Percy Flemming will speak on the Care of School-Children's Eyesight. On Oct. 26th, at 5.15 P.M., Mr. B. Seebohm Rowntree will speak on Factory Life as it is and as it might be, and on Oct. 29th, at 5 P.M., Miss Iza Thompson will discuss the Teaching of Speech to Deaf Children. Prof. G. Dawes Hicks will give six public lectures on the Fundamental Concepts of Natural Science on Nov. 2nd, 9th, 16th, 23rd, 30th, and Dec. 7th. On Nov. 9th, at 5.15 P.M., Prof. J. C. Drummond will give an address on Vitamins. On Nov. 29th, at 5.30 P.M., Sir William J. Collins will give a public lecture on the Life and Doctrine of Sir Edwin Chadwick, and on Dec. 7th, at 5.15 P.M., Prof. Karl Pearson, F.R.S., will give a public lecture on Eugenics. Admission to these lectures is by ticket to be obtained from the Publications Secretary, University College, Gower-street, London, W.C. 1.

King's College and King's College for Women.—Nine lectures on the Biological Foundations of Society will be given by Prof. Arthur Dendy, F.R.S., on Wednesdays, at 5.30 P.M., beginning on Oct. 17th.

Bedford College for Women.—A public lecture on the Treatment of Memory-Images in Modern Psychology will be given by Miss B. Edgell on Oct. 10th, at 12 noon, and on the Quantum Theory and Electromagnetic Phenomena, by Prof. W. Wilson, F.R.S., at a time to be arranged.

UNIVERSITY OF GLASGOW.—Prof. John Ronald Currie, M.A. Edin., M.A. Oxon., M.D. Glasg., D.P.H. Birm., M.R.C.P.E., who has been elected Henry Mechan Professor of Public Health in the University of Glasgow, was appointed professor of preventive medicine in Queen's University, Kingston, Canada, in 1922. His early appointments included those of house physician and house surgeon at the Glasgow Royal Infirmary and resident medical officer at the Glasgow Maternity Hospital. He then became senior assistant physician to the Belvidere Fever Hospital, Glasgow, and later physician in charge of the City of Glasgow Small-pox Hospital. From 1907 to 1912 he acted successively as acting medical officer of health to the counties of Stirling and Dumbarton, assistant medical investigator to the Royal Commission on Poor-Laws, medical officer of health and principal school medical officer to the city of Chester, and medical officer of health and principal school medical officer to the counties of Fife and Kinross; in 1912 he was appointed medical officer to the Scottish Insurance Commission. During the war he acted as specialist sanitary officer in various districts, and from 1919 to 1922 was a medical officer to the Scottish Board of Health.

GUILD OF ST. LUKE.—The annual service will be held at St. Paul's Cathedral on St. Luke's Day, Oct. 18th, at 7 P.M. Seats will be reserved for medical practitioners and students, all of whom are invited to attend, whether they are members of the Guild or not. The Guild of St. Luke, which was founded in 1864, has for its object the mutual encouragement and support of its members in leading a Christian life. Membership of the Guild is open to students and practitioners of medicine who are communicants of the Church of England, the clergy of which are eligible for election as Clerical Associates. Tickets for the service and further particulars concerning the Guild may be obtained on application to the Guild Secretary, the Rev. H. Kirkland-Whittaker, M.A., M.D., Chaplain's House, Banstead Downs, Sutton, Surrey, or to the Secretary of the Women's Ward, Dr. Isabel Pulteney, 2, Bryanston-place, London, W. 1.

MEDICAL SOCIETY OF LONDON.—The Fothergillian medal and prize have been awarded to Sir Arthur Keith and will be presented to him at the general meeting of the Society on Monday, Oct. 8th, at 8 P.M.

ST. ANDREWS INSTITUTE.—The sum of £5000 has been received as a first instalment of a fund being raised in Perthshire for the support of the Institute founded by Sir James Mackenzie, a Perthshire man.

POST-GRADUATE COURSE AT MANCHESTER.—A free course of eight lectures will be given by the surgical staffs of the Salford Royal Hospital and Ancoats Hospital on Surgical Tuberculosis, on Thursdays at 4.30 P.M., commencing on Oct. 18th.

VICTOR HORSLEY MEMORIAL LECTURE.—The first Victor Horsley Memorial Lecture will be delivered by Sir Edward Sharpey Schäfer in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, on Thursday, Oct. 25th, at 5 P.M., on the Relations Between Surgery and Physiology. All members of the medical profession will be admitted on presentation of their cards.

THE gold medal founded by Sir Gilbert Blane has been awarded by the Director-General of the Medical Department of the Navy and the Presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England to Surgeon-Lieutenant Commander Julian L. Priston, M.B., M.R.C.P., D.P.H., R.N.

SCHOOL MEDICAL SERVICE AT YARMOUTH.—The Board of Education have expressed their approval of the school medical service for the current year, but have given the authority to understand that the present arrangements for treatment of defects are in their opinion inadequate. Accordingly, Dr. A. N. Stevens has outlined a scheme for treatment of minor ailments, visual defects, and dental treatment. Cleanliness surveys by a nurse are also contemplated.

LONDON SCHOOL OF DERMATOLOGY.—In order to further the study and teaching of dermatology in London, a scheme has been completed whereby teaching will be conducted at St. John's Hospital for Diseases of the Skin by the honorary medical staff of the hospital, together with the physician in charge of the dermatological departments of the 12 London teaching hospitals. Full details will be published later, but in the meantime the announcement in our advertisement columns of lectures to be given on Tuesdays and Thursdays at 5 P.M. during the winter session may be consulted.

ECONOMY IN THE ISLE OF ELY.—A decision to dispense with the services of a second medical officer under the Isle of Ely County Council was followed by a request from the county medical officer, Dr. J. P. Walker, for a testimonial relating to the work he has already done for the Council with a view to applying for another appointment. He pointed out that the Council have admitted that the work cannot be performed satisfactorily by one medical officer, and that he feels that, although his work under the authority has so far been carried on under harmonious conditions, such conditions are not likely to prevail when the proposed extra duties are unsatisfactorily performed owing to the inability of one man to cope with them. A deputation to the Board of Education and the Ministry of Health have already been told by these departments that in their opinion the work cannot be satisfactorily performed by one officer.

SUNDERLAND ROYAL INFIRMARY.—On Sept. 26th the new operating theatre block, built and equipped in memory of the late Mr. J. Y. Short, at a cost of £7000, was opened by his widow and his son, Mr. T. Short. Dr. Wm. Robinson, chairman of the medical board, described the new building and said that the site had been carefully selected so that the block would not interfere with the future extension of the wards of the Infirmary, which was much needed because of the great length of the waiting list. The block consists of a suite of 11 rooms opening off a central corridor—namely, (1) a dark room for examination of the eye, ear, throat and nose, cystoscopy, &c., in which mastoid and similar operations can be done; (2) a recovery room with two beds; (3) surgeons' preparation room with six lockers, a long and a shower bath, wash-basin, and w.c.; (4) an anæsthetising room; (5) and (6) two large theatres, one side of each and part of the sloping roof are of glass; (7) an instrument and surgeons' final preparation room; (8) a sterilising room; (9) sisters' room; (10) a housemaids' room; and (11) store room. Dr. Robinson showed that these two additional theatres would admit of a throat and ear department being established, and also of increase of the size of the eight old wards which was necessary in the future.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 8th.

WAR: at 5 P.M.
Presidential Address:
Air Commodore D. Munro: The Possible Uses of the Aeroplane in the Medical Services in Future Warfare.

Tuesday, Oct. 9th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Discussion:
On the Use of Insulin in General Practice, to be opened by Prof. Hugh Maclean, followed by Dr. George Graham, Prof. J. J. R. Macleod (Toronto), and others.

Thursday, Oct. 11th.

NEUROLOGY: at 8.30 P.M.
Presidential Address:
Dr. James Collier: The Pathogenesis of Cerebral Diplegia.

Friday, Oct. 12th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown.
OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)
Cases will be shown.
Paper:
Mr. T. Harrison Butler: Muscle Recession in Strabismus.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Oct. 8th.—8 P.M., Annual General Meeting. The Fothergillian Medal and Prize will be presented to Prof. Sir Arthur Keith, F.R.S., at this meeting. 8.30 P.M., Ordinary Meeting. President's Address On Some Changes in Obstetric Practice since the Foundation of the Medical Society of London, by Dr. Herbert Spencer.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 8th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Myasthenia Gravis: Dr. James Taylor.

TUESDAY, Oct. 9th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Parasyphilitic Affections and their Treatment: Dr. Risien Russell.

THURSDAY, Oct. 11th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Hemiplegia: Dr. Walshe.

FRIDAY, Oct. 12th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Hæmatomyelia: Dr. Collier.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Oct. 8th.—12 noon, Cerebro-spinal Fluid, Anatomy, and Physiology: Dr. J. Godwin Greenfield.

A COURSE of LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be arranged if there are sufficient entries for it.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s*. The fee for the Anatomy and Physiology Lectures will be £3 3*s*., but this Course will only be given if six or more entries are received. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7*s*. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 P.M. each day.)

MONDAY, Oct. 8th.—(Children's Hospital.) Mr. Dun: Surgical Treatment of Tubercular Glands.

TUESDAY.—(Southern Hospital.) Dr. Macalister: Ateleiosis and Stunted Growth.

WEDNESDAY.—(Northern Hospital.) Mr. Monsarrat: Cholecystitis.

THURSDAY.—(Stanley Hospital.) Mr. Evans: The Acute Abdomen in the Child and Adult.

FRIDAY.—(Royal Infirmary.) Mr. Thelwall Thomas: Surgical Cases.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Oct. 8th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.

TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Department. 12 noon, Dr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Dr. Burnford: Medical Wards. 10 A.M., Dr. Banks-Davis: Operations on the Throat, Nose and Ear.

Daily, 10 A.M. to 6 P.M., Saturday, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 9th.—4.15 P.M., Mr. H. H. Rayner: Difficulties and Pitfalls in the Diagnosis of Acute Abdominal Diseases.

FRIDAY.—4.15 P.M., Dr. F. Craven Moore: Modern Conception and Investigation of Dyspepsia.

Appointments.

CURRIE, J. R., Professor of Preventive Medicine at Queen's University, Kingston, Canada, has been appointed to the chair of Public Health, Glasgow University.

PATRICK, A., M.B., Ch.B. Glasg., F.R.F.P.S.G., Professor of Medicine at St. Andrews University.

TURNER, A. A., M.B., Ch.B. Aberd., D.P.H., Deputy Medical Officer of Health and School Medical Officer, Croydon.

Manchester Royal Infirmary: **SHAW**, R. C., M.R.C.S., L.R.C.P., Second Surgical Registrar; **HICKSON**, S. K., M.B., Ch.B. Manch., M.R.C.P. Lond., Cardiological Registrar; **MITCHELL** W., M.B., Ch.B. Manch., and **LOWE**, G., M.B., Ch.B. Manch., Clinical Assistants; **DUTHIE**, O. M., M.B., Ch.B. Manch., Resident Medical Officer, Barnes Convalescent Hospital, Cheadle.

Certifying Surgeons under the Factory and Workshop Acts: **CROMIE**, G., M.B., Ch.B. Edin. (Bridgwater); **DOHERTY**, W. I., M.B., Ch.B. Leeds (Maidenhead).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne Union.—Med. Supt., &c. £450.
Birmingham General Dispensary.—R.M.O. £450.
Bristol Royal Infirmary.—Hon. Dental Surgeon.
Bury Infirmary.—Jun. H.S. £150.
Cardiff Royal Infirmary.—Hon. Dent. S.'s. Also Hon. Asst. S.
Croydon Borough Sanatorium, North Cheam.—Res. Med. Supt. £750.
Derby County Mental Hospital, Mickleover.—Asst. M.O. £350.
Derbyshire Royal Infirmary, Derby.—Two H.S.'s., H.P., &c. Each £200.
Egyptian Government School of Medicine.—Lecturer in Experimental Physiology. L.E.540 a year.
Gloucestershire Royal Infirmary.—Hon. Anæsth. Two Hon. Dental Surgeons.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. Also Res. M.O. £500.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—R.M.O. and H.P. £150 and £100.
Hospital for Sick Children, Great Ormond-street. W.C.—H.P. and Asst. Cas. O. £50. H.S. £50.
Hull City Asylum.—Jun. Asst. M.O. £300.
Leeds Public Dispensary.—Sen. Res. M.O. £200. Jun. Res. M.O. £150.
London County Mental Hospital Service.—Seventh Asst. M.O. £432.
London Lock Hospital, 91, Dean-street, W.—H.S. £200.
Lowestoft, St. Luke's Hospital.—Jun. Asst. M.O. £500.
Manchester Hospital for Consumption and Diseases of the Throat.—Hon. Asst. Phys.
Manchester, Victoria Memorial Jewish Hospital.—Res. M.O. £150.
Mount Vernon Hospital for Diseases of the Chest, Northwood, Middlesex.—Asst. Phys.
Nottingham Cripples' Guild.—Hon. Orthopædic S.
Oswestry, Shropshire Orthopædic Hospital.—Res. Surg. O. £500. Two H.S.'s. £250.
Paddington Green Children's Hospital, W.—H.P. and H.S. Each £150.
Royal Eye Hospital, St. George's Circus, Southwark, S.E.—Hon. Asst. S. Also Jun. H.S. £75.
Salford Royal Hospital.—Hon. Dent. S.
St. Mary's Hospital, Paddington, W.—Med. Supt. £350.
Staffordshire General Infirmary, Stafford.—H.S. £200.
Talgarth, Breconshire, Mid Wales Counties Mental Hospital.—Asst. M.O. £350.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 32 (attached more particularly to the Attleborough, Aylsham, Downham Market, East Dereham, Fakenham, Holt, King's Lynn, North Walsham, Norwich, Swaffham, Thetford, and Wymondham County Courts). Applications are invited preferably from medical practitioners resident in West Norfolk, and should be addressed to the Private Secretary, Home Office, so as to reach him not later than Oct. 20th.

Births, Marriages, and Deaths.

BIRTHS.

WRIGHT.—On Sept. 22nd, at Wingfield-road, Trowbridge, the wife of Dr. Roger Wright, of a daughter.

MARRIAGES.

DAVIES—SLY.—On Sept. 26th, at the Parish Church, Wrexham, John E. H. Davies, D.S.O., M.R.C.S., of Plas Darland, Wrexham, to Nona, daughter of Dr. and Mrs. Sly, Sydney, Australia.

DUKE—HUNT.—On Sept. 25th, at St. Paul's, Camden-square, Harold Denny Duke, M.R.C.S., L.R.C.P., to Dorothy Ann Hunt, second daughter of the late Joseph Hunt, J.P., and of Mrs. Hunt, of the Pynes, Canterbury.

FRASER—BAILEY.—On Sept 26th, at the West Parish Church, Helensburgh, Matthew William Fraser, West African Medical Staff, to Grace Eileen Bailey, only daughter of the late Reginald Bailey, Limpsfield, Surrey.

OAKDEN—MOSTYN.—On Sept. 27th, at St. John's Church, Torquay, George Marshall Oakden, L.R.C.P., M.R.C.S., L.D.S., to Enid May, third daughter of Tom Mostyn and Mrs. Mostyn, Crookham, Torquay.

DEATHS.

MOWAT.—On August 21st, at Kuala Lumpur, Harold Mowat, M.D., Ch.B., Radiologist to the Government of the Malay States, late Captain, R.A.M.C., and Surgeon, R.N., aged 40 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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POSITION PAGES.—Terms on application.

THE next general meeting of the Society for Constructive Birth Control and Racial Progress will be held on Thursday, Oct. 18th, at 8 P.M., at Essex Hall, Strand, when a presidential address will be delivered by Dr. Marie Stopes on Medical Contradictions and Mistakes in Evidence in Her Recent Case. Those interested in the Society should apply for information to the Hon. Sec., C.B.C., 7, John-street, Adelphi, W.C. 2.

Notes, Comments, and Abstracts.

SOME BALKAN REMEDIES FOR DISEASE.

AN attack of sciatica during a visit to Albania furnished its victim, Miss M. E. Durham, with some entertaining reminiscences of the herbal and other remedies, including spells and magic, of local fame, which she records in the September number of *Man*. The wish of the people to kill a pelican and rub her leg with its fat because pelicans always get their feet wet and never have rheumatism, was discouraged by the doctor attached to the Austrian hospital. Other prescriptions suggested were: (1) to beat the limb with stinging nettles; (2) to rub it with roasted onions boiled in oil (this was tried and, in the form of gentle massage, gave some relief); (3) to slaughter a sheep and wrap the patient in the raw hide because the sheep eats all kinds of herbs, and their virtue will soak into the patient. The doctor's protest against this last remedy succeeded in view of his vivid description of a visit to a patient to whose skin a split black cat had been applied some ten days before. Miss Durham found among the Christians a great belief in the efficacy of Moslem spells, while Moslems resort to Christian rites for a cure. Her guide had himself been cured of rheumatism by a magician who had waved certain herbs over a fire, muttering spells, and had then placed the bunch of herbs on the patient's head saying: "Pain, pain, leave this man and go to the top of a high mountain, where there is neither man nor beast, and stay there." Another equally efficacious method was to cut some hair from the crown of the head of the patient, and some from each armpit, and burn it in a brazier, saying: "May the pain disappear as does this hair." The pain, according to Albanian peasants, obeys and never comes back. A cure for jaundice was to find a red rose and to tie a piece of yellow wool round it, tying a piece of red wool round the child. The magician says: "Yellow, yellow, go out of the child and into the rose. Red, red, go into the child." In a few days' time the rose withers and turns yellow, and the child resumes its natural colour! An even better remedy, she was informed, is to catch a small fish and put it in a bucket of water. The patient must fix his eyes on it as it swims round and round; after a time the disease goes into the fish and it dies, and the patient recovers. A certain cure for epilepsy difficult to obtain involves the detection of a snake in the act of swallowing a frog. A black handkerchief thrown over the snake frightens it and it disgorges the frog. If the handkerchief is kept carefully, and thrown over someone in a fit, the disease similarly will be disgorged.

In parts of Montenegro there were Austrian and Russian doctors practising, and home-made treatment was being gradually superseded. In the Tsrmnitza valley hernia is cured by old women in this wise, the fee for each operation being 2*d*. and a gift of a cheese or some eggs. The name and address of the patient has to be divulged but his presence is not necessary. Some freshly drawn water is put into a metal, long-necked jug (ibrik) and set to boil on the fire, with the words: "Water, I call on you three times from Heaven to earth—let the bowel of Mr. 'X' return to its place." When the water boils it is poured at once into a metal shallow basin and the ibrik inverted with its mouth in the water. As the ibrik cools a certain amount of the water rises up into the neck—the more the luckier—and so should Mr. "X's" bowel return to its place. The charm is repeated daily till relief is experienced, and such faith does it inspire that Montenegrins afflicted abroad write home to have the charm performed.

THE RISKS OF WIRELESS APPARATUS.

IN a recent report of the "Radio Hazards" Committee of the National Safety Council, Chicago, Ill., the assertion is made that carelessness and ignorance are responsible for nearly all accidents that occur during the handling of wireless apparatus. The quantity of such accidents is stated to be small, considering the great numbers of people who now own, erect, and use wireless sets, but for the guidance of amateurs the committee gives advice, of which the following is the substance:—

"The handling of antenna wires after they have become charged by falling on or touching high voltage power and light wires (or by those wires falling on the aerials) has resulted in severe shock and death. The collapse of antenna masts due to improper or insufficient guying has led to such cases as well as to serious falls. An outdoor aerial is not necessary for efficient reception of radio messages. The use of an indoor aerial eliminates contact with outside power and light wires and the hazard of climbing to unfamiliar places. A lightning arrester, while not absolutely necessary, should be installed. Storage batteries have caused several accidents, due to the fact that after charging expelled oxygen and hydrogen gases (an explosive mixture) have come in contact with an open flame or have been ignited by crossed wires. Spilling or leaking of electrolyte (usually sulphuric acid) has ruined interior furniture and caused severe body burns.

There is ample current capacity in dry cell batteries to produce a fatal shock, but ordinarily the voltage is not sufficient to force this fatal shock through the body. A good general rule for avoiding shock is to use one hand only and be sure the body is nowhere grounded. The sending station should preferably be located in a building of substantial construction, and should derive the current necessary for operation from a source other than the supply to the building for other purposes. The lead-in wire should be kept 5 inches away from all parts of the building. The same air space should be provided for all ground wires. Splices and joints in the antenna span and lead-in wires, unless made with approved clamps or splicing devices, should be soldered. All antennas and lead-in wires should be of copper or approved clad steel not smaller than No. 14 B. and S. gauge. The lead-in wires should enter the building only through non-combustible, non-absorptive insulating bushings."

In the United States, "generally speaking, fire insurance companies will not be affected adversely by the installation of radio receiving sets even with outdoor antennas. It is suggested, however, that those who wish to make certain of this point, call up their insurance broker, who will either give verbal consent to the addition or will issue a radio permit endorsement for the fire insurance policy without charge or change in rate."

ASSOCIATION OF CERTIFICATED BLIND MASSEURS.

SPEAKING recently at the general meeting of the Association of Certificated Blind Masseurs, Sir Robert Jones, President of the Association, quoted figures to show the progress made by the Association during the year 1922–23. At the termination of its fourth financial year the Association numbered 160 members, of whom 81 were ex-soldiers 37 civilians, and 42 masseuses. The general public and even some of the medical profession, he said, were badly in need of information about massage and the blind masseur. There was a popular idea that the Association was of the nature of a transient war charity, and out of this misconception had arisen the belief that, however excellent a blind masseur might be, and however patriotic it might be to employ him, he could not, of course, equal the skill of a masseur with sight. That the blind were specially suited to become masseurs was now a commonplace amongst all who had supervised their work. They acquired in certain sympathetic directions a deftness and delicacy of touch not often found in the ordinary masseur—they worked by insight and with that compensation of nature, by which where one faculty was weakened, another was made strong. It was imperative that the Association should dispel the view that the blind masseur could not compete in the open market, and that the idea of him, both as a post-war problem and as an amiable charity, should be demolished. The official organ of the Association is published monthly in embossed type, and contains lectures and articles on massage and kindred subjects by eminent medical men. Through the generous help of the National Institute for the Blind the journal is embossed and despatched free of charge to all registered members of the Association.

SMITH'S PHYSICIANS' AND SURGEONS' VISITING LISTS.

A VISITING list in the form of a pocket-book is almost an essential for the busy practitioner. Smith's Physicians' and Surgeons' Visiting List (published by Messrs. Hazell Watson and Viney, 52, Long Acre, London, W.C. 2) has now appeared for 78 years—a measure of its popularity. Bound in cloth boards or in leather, with tuck pocket and pencil, these books measure 6¼ by 3½ in., and consist mainly of ruled pages for keeping a record of visits, obstetric and vaccination engagements, patients' and nurses' addresses, and so forth. A section devoted to things lent is a modern and useful feature for any diary. There is a preface of some 32 pages of ready information for the doctor, such as the dosage tables of the British Pharmacopœia, tables for calculating the period of uterine gestation, suggested professional charges, lists of poisons and antidotes, &c. The inclusion of a short summary of requirements under the Registration and Notification of Births Acts and of a form for making a will indicates the comprehensiveness of the book. Prices vary from 6*s*. 6*d*. to 12*s*. 6*d*. according to binding and ruling, and books can be obtained for keeping records of from 25 to 200 patients, the largest size being rather bulky for pocket use.

"CHEMISTS TO A NATION"

WIDESPREAD ACTIVITIES OF "BOOTS THE CHEMISTS."

A GREAT MANUFACTURING, DISTRIBUTING AND RETAILING CONCERN

BY HERBERT HILL.

HACKNEYED as it may be, the old saw "Great oaks from little acorns grow" has nevertheless a triteness about it and a ring so typically British, that it seems particularly appropriate when used to epitomise the birth and phenomenal growth of that great organisation known practically throughout the length and breadth of the land as "Boots The Chemists."

When, in the early seventies, half a century ago, the young lad, Jesse Boot, took over his dead father's little shop for the sale of herbs, situate in the unpretentious thoroughfare of Goose Gate, in the centre of the City of Nottingham, the acorn was planted which, in due course, was to take root and grow to be one of the largest and most powerful retail shop-owning concerns in the world.

A Many-sided Organisation.

But, although it is as owners of attractive shops wherein are retailed drugs and medicines, and toilet and personal requisites, that the firm of Boots the Chemists is so widely known and patronised by the public, the concern is, as a matter of fact, much more than a company of shopkeepers. The widespread network of retail chemists' shops has behind it a vigorous many-sided organisation at first glance bewildering in its complexity, but which, upon a closer scrutiny, very quickly demonstrates a truly remarkable efficiency.

Before proceeding in any way to enlarge upon those activities of the Boots organisation which do not directly evidence themselves to the millions of people using its shops, it may be as well to state that the undertaking comprises a group of six joint stock companies. They are :—

Boots Pure Drug Company, Ltd.
Boots Cash Chemists (Eastern), Ltd.
Boots Cash Chemists (Lancashire), Ltd.
Boots Cash Chemists (Northern), Ltd.
Boots Cash Chemists (Southern), Ltd.
Boots Cash Chemists (Western), Ltd.

Five Millions of Capital—40,000 Shareholders.

The total capitalisation of these six companies is £5,000,000, and the shares are held by no less than 40,000 shareholders domiciled all over the country.

The original, and still the parent concern, is Boots Pure Drug Company, Ltd., whose very important function is the buying of all raw material and its manufacture and distribution to the hundreds of branches owned by the five subsidiary retailing companies—those distinctive shops which are so familiar a feature of the principal shopping thoroughfares of nearly every town or city of any size in the Kingdom.

The Head Offices of all the six companies are at Nottingham, within a stone's throw, so to speak, of the site upon which stood the original little shop which was to be the forerunner of the present-day Boots organisation, and the whole of the administrative work of the business is directed from that centre.

More than 900 people are engaged on the administrative side, and a vast amount of detail work is performed by them. Exhaustive digests, dissections, and costings are undertaken, and thus a very close watch is kept on all such matters as manufacturing costs of production, stocks, records, branch finance, and so on.

Activities and Assets.

That such a large clerical staff is necessary will be easily understood once an appreciation of the ramifications and magnitude of the organisation behind the retail distribution is gained. Some of its activities and assets may be briefly set out as follows :—

First of all, in addition to running nearly 700 thoroughly up-to-date chemists' shops, the Boots concern manufactures on a huge scale all kinds of medicinal and pharmaceutical preparations, for which purpose it possesses one of the most extensive and up-to-date plants in the world. No less than 35 per cent. of the great volume of pharmaceutical products sold over the counters of the Boots shops are manufactured by the organisation itself.

It has extensive research and analytical laboratories under the most highly skilled technicians. And, supplementing the important part these laboratories play in connection with the demands of the organisation of which they form so essential a unit (some 70,000 analyses were undertaken last year), research work which has proved of great national value is carried on.

It owns printing works giving employment to 400 people. These printing works are a model of their kind, and are frequently visited by people from all over the country interested in printing.

It has a plant for the manufacture of extract of malt with cod-liver oil with a capacity of 500 tons per annum.

It operates a soap-works and a perfume distillery, where bath and other fancy soaps and perfumes of all varieties are turned out in large bulk.

It runs a mineral-water factory, and throughout the Midlands in particular Boots mineral waters are widely known.

It is the largest user of Burroughs Adding Machines in the Kingdom.

It runs a bookbindery and a picture-framing factory.

It has a power-house with a consumption of 400 tons of coal a week.

It has a carpentry, joinery and cabinet-making works, turning out showcases, desks, counters, chairs, office furniture and equipment and other internal fittings, as well as designing and making all the shop-fronts required by the subsidiary companies.

It sells well over half a million books in the course of a year, thus dispensing much “ medicine for the soul,” as well as for the body.

BOOTS WORKS, ISLAND STREET, NOTTINGHAM, FOR THE MANUFACTURE OF FINE CHEMICALS.

It has first-aid rooms, an up-to-date surgery and convalescent and holiday homes for the benefit of the employees.

It has a window display department for inculcating the art of window dressing on the approved “ Boots ” lines, and lastly its activities cover the running of a school.

One might go on almost ad infinitum cataloguing the activities and possessions of this versatile concern, but enough has been said to indicate, at least to some extent, the diverse operations embraced by the Boots companies in their endeavour to give to the public a service which shall be the last word in the matter of supplying pure drugs and chemicals, medicinal and toilet preparations and the various side-lines allied thereto.

Nottingham the Headquarters.

All the laboratories, factories, warehouses and workshops enumerated above (and the list is by no means exhaustive) are situated at Nottingham. The floor space of the various buildings approximates 1,055,944 superficial feet, and they stand on some 14¼ acres of land. To make a thorough inspection of them all would call for no mean expenditure of physical effort, but even a quick run through is sufficient to impress one with the wonderful versatility of the concern, and to compel a tribute to the genius which could envisage such an undertaking and to the brains and willing service which carry it ceaselessly forward.

Willing, or perhaps one should rather say, enthusiastic service, seems, indeed, to be the keynote which energises the whole of the staff one meets at Nottingham. Again and again as one wends one’s way from one building to another some particularly ingenious device or clever piece of machinery stands out to catch the eye, but over and above all one senses throughout the entire organisation that spirit of enthusiastic service which goes far to explain the wonderful success of the Boots undertaking.

Up-to-date Working Conditions.

Then, too, one cannot fail to note the spaciousness, cleanliness, and airiness pervading all the many separate buildings. Unquestionably the employees work under the most favourable conditions, and this congenial atmosphere must do much to lessen the possibilities of their work assuming the dull routine of a monotonous task.

And to realise that many of the individual tasks might well become monotonous is but to watch, say, the automatic bottling machines working as rapidly as the attendant girl can work a lever. In many of these mechanical contrivances the output capacity of the machine seems to be limited only by the physical capacity of the human who operates it. It is, therefore, to the advantage of the employer to see that the employee works in the most attractive surroundings. Mechanical genius has made such strides as to eliminate largely the human interest of the workman in his work, and the psychological effects of this can only be countered by ensuring that the environment in which the more or less automatic task is performed is of the best.

Model Shops and Ideal Factories.

This the Boots organisation wholeheartedly attempts to do. Just as the Boots retail shops are models of what such shops should be, so the Boots laboratories, factories and workshops appear to be as near the ideal as it is as yet possible to get. Boots obviously take a pride in their workpeople, in their plant and machinery and in their buildings. Industrial psychology in all its phases is given the most careful study. Nothing seems to be left undone in regard to the comfort and well-being of their employees ; the buildings and premises are constantly undergoing extension and improvement, and the plant and machinery is continually receiving additions and renewals.

Machine Made Pills.

Where there is such an infinite variety of mechanical appliances in use it is not easy to single out any for particular mention, but the process of pill making by machinery would probably appeal most to nine out of ten visitors to the factories.

One sees the pill mass worked up in a capacious mechanical mixer, then automatically rolled into strips, and then again automatically rolled into the conventional little globules. These globules are mechanically sorted for size, and " under sizes " and " over sizes " are automatically rejected and go back again into the pill mass for the automatic process to be repeated.

The coating of pills is done by a device which holds the individual pill by a vacuum, immerses one-half in the coating solution, and then performs a similar operation with the other half of the pill.

One sees also the homely but necessary Seidlitz powder and the morning draught of Erasmus Wills' Salts mechanically compounded and mixed in huge bulk in drums of wonderful capacity and marvellous cleanliness, then mechanically weighed by machines with a daily capacity of some 30,000 quarter-pound tins, packed, and so via the despatch department to the shop counter.

One strolls further and sees vaseline being filled into pots by machinery at the rate of over 30,000 pots during the working day, and emulsions, extracts, mixtures, powders, lozenges and pastilles, and many other preparations all being similarly dealt with in an expeditious manner by efficient machinery, supplemented by equally efficient human aid. These

> herbs and other country messes
> which the neat-handed Phyllis dresses

are, indeed, handled with scrupulous cleanliness and meticulous exactitude by the many hundreds of white overalled girls throughout the various departments.

The manufacture of scents of all varieties and descriptions is another important side of the business. The still used in the manufacture of Eau-de-Cologne has a capacity of 130 gallons. There are also 100-gallon measuring tanks and 135 storage tanks with a capacity of 100 gallons each. This department, in addition, manufactures many varieties of other scents and hair oils, and the fact that the contents are insured for £100,000 gives some idea of the magnitude of the output.

Boots also produce in vast quantities face and talcum powders, tooth pastes, cold creams, vanishing creams and similar products, and it is extremely interesting to watch the careful supervision of all the different phases in the manufacture of these various toilet preparations. An instance of this care in production is the provision made to ensure that all complexion powders are of an impalpable fineness suitable for the most delicate skin. This task is achieved by silk bolting machines and rotary sifters, while the necessary colour grading is performed with the help of machines called edge runners. In the case of tooth pastes the methods adopted are as equally efficient, and so great is the output that manufacture is carried out in batches of half a ton.

Some idea of the magnitude of the output from the Nottingham Laboratories and Factories can be gathered from the fact that over 1¼ million packages are dealt with every week, and 800 tons of Salines, 500 tons of Official Galenicals, 500 tons of Malt Extract and Malt and Oil, 273,000 gallons of Wet Preparations, Emulsions, etc., in the course of a year.

The packing of this great bulk ready for retail distribution requires some 46 millions of labels, handbills, printed wrappers and linings, ten million cartons, twelve and a half million corks, twenty million bottles and jars, fifteen million tins and five tons of string.

Purity and Accuracy Tests.

Reference has already been made to the very large number of analyses performed in the analytical laboratories in the course of a year, and this point will bear further emphasis. Boots leave no stone unturned to ensure the purity and efficiency of all their products. Every package of raw material before being taken into stock is subjected to analysis to ensure that it is what it purports to be, and the material cannot be used until a certificate has been given by the chief analyst. Further, all manufactured products are analysed at various stages of preparation, and when completed are again subject to close scrutiny during packeting or bottling.

Boots technical experts meet regularly in the " Formula Committee " (which is specially charged with the duty of taking care of the quality of Boots products) and together scrutinise most carefully the formulas, the processes of manufacture, analytical standards, and labels with the directions for use, etc., with the dual object of ensuring that Boots products are of the finest possible quality and that they are presented to the public with adequate instructions for their safe use in the home.

A National Asset.

As already mentioned, in the course of a year the analytical laboratories make some 70,000 analyses, and it is in these analytical laboratories that Boots possess a wonderfully efficient instrument from which the public reaps a great benefit. Not only is an exceptionally high standard of purity guaranteed in all pharmaceutical products to the advantage of the individual purchasers in the Boots shops, but the experimental work which is continually going on is of incalculable value to the nation at large. In the best sense of the word the Boots laboratories are a National asset.

The founder of the firm, Sir Jesse Boot, was a visionary in the matter of the scientific control of pharmaceutical manufacture, and it is simple historical fact that he established a laboratory for the analytical control of the products of his firm at a time when the authoritative standards of the British Pharmacopœia were what we now think perfunctory, and when practically no other house in the trade considered such a safeguard either necessary or financially possible.

Boots War Record.

This steadfast faith in the necessity of a scientific basis for pharmaceutical manufacture stood the firm in good stead when, in the early days of the war, the manufacture of chemicals heretofore never produced in England was undertaken with striking success. The firm became the pioneer in this country of large-scale production of fine pharmaceutical chemicals.

196-198a Northdown Rd.
Cliftonville, MARGATE.

102 Princes Street,
EDINBURGH.

High St & Pelham St.
NOTTINGHAM.

46-48 Fleet Street,
TORQUAY.

BOOTS PURE DRUG CO., LTD.

36 Queen Street,
CARDIFF.

31 Northgate St.
GLOUCESTER.

45-47 Lord Street,
LIVERPOOL.

182 Regent Street,
LONDON, W.1.

BOOTS PURE DRUG CO LTD

The Fine Chemical Works.

The plain tale of the achievements of the Boots organisation during that trying period is a record of remarkable and conspicuous service. In collaboration with the Anti-Gas Department of the Ministry of Munitions it produced the first effective box respirators ever used, and supplied the whole of the chemical granules for filling the respirators used by the British and certain of the Allied Armies during the whole period of the war. In addition the firm filled and supplied upwards of 8,000,000 complete box respirators to the British and Allied Armies. Contemporaneously the manufacture of saccharin was being worked out at the behest of the Sugar Commission, and Boots became, and still are, the largest producers of this useful sweetener in the United Kingdom.

These then novel activities soon called for the services of a laboratory devoted solely to the higher branches of chemical research, the result of which establishment has amply justified the foresight shown. The highly trained personnel soon found themselves hampered in their work by a lack of suitable research chemicals, formerly imported entirely from certain firms specialising in them in Germany, and the problem of a home supply was attacked. So successfully have the research chemists of the firm applied themselves to this task that it has been found possible to publish a list of 800 research chemicals issued by the firm which enjoy increasing popularity in the laboratories of the universities and scientific institutions of the country.

An Improved "Salvarsan."

A further striking indication of the value to the Nation of the work carried on in the Boots Research Laboratories is afforded by the Company's experience in the early days of the war in the matter of Salvarsan. A shortage of Salvarsan had early manifested itself when German supplies were cut off, and as a result of the valuable research work carried out by the company's chemists a licence for the use of enemy patents had been granted to the firm by the Board of Trade.

Not content, however, to be mere copyists, the research staff discovered a much superior product, which, while being at least equally effective as an anti-syphilitic was much less toxic in effect, and could be presented in the form of a solution for easy administration. This preparation, covered by letters patent granted to the Company and called "Stabilarsan," enjoys an increasing sale and is the last word in anti-syphilitic technology.

The newer antiseptics, such as Chloramine T., Proflavine and Acriflavine were produced early in the history of the Chemical works, and such products as aspirin and chloroform are staple manufactures. Fine alkaloids and delicate active principles such as Atropine, Hyoscyamine, Caffeine, Digitalin and Capsaicin are also regular products of the works.

The New Diabetes Remedy.

The most recent instance of the determination of the Boots organisation to maintain its position as leader in the newer therapy is its enterprise in the production of "Insulin," the new remedy for certain forms of diabetes. Intensive research work has resulted in the production of a product of remarkable activity which has undergone clinical tests at one of the most important of the London hospitals for some considerable time past. The good results obtained encourage the hope that we are on the threshold of a revolution in the treatment of this hitherto fatal disease, and the Company is fully alive to the possibilities open to it in virtue of its enlightened view of its responsibilities in face of this great advance in medical science.

The firm is one of the very few licensed by the Medical Research Council for the production of this important product, and its set policy is by diligent and intensive research work to retain its proud position in the production of the medicaments of the newer therapeutics.

That it will succeed in its endeavour to give a lead not only in this direction, but also in its declared intention to maintain the honoured traditions of pharmacy, none who come into close contact with the business can for one moment doubt. An executive with vision and foresight, adequate and conservative finance, and a staff of enthusiastic and experienced workers is a triple alliance of indisputable strength.

DRUG AND DISPENSING DEPARTMENT AT BOOTS THE CHEMISTS' BRANCH, ROYAL EXCHANGE, MANCHESTER.

A 13,000 Staff.

And one is inclined to think that not the least potent factor in the combination is the great reserve of productive energy and good-will provided by the employees of the concern. Approximately 13,000 people are employed by the Boots Companies, and of these over 1,000 are qualified men in charge of the retail shops and of various departments at the manufacturing end of the business. We have already noticed the spirit of enthusiasm which animates all grades of workers at the Nottingham headquarters, and the same esprit de corps is to be found at the branch shops. Instances of long years of service with the firm are frequent, and employees of twenty years' standing are quite numerous. This seems satisfactory enough testimony to the conditions of employment and the interest shown by the executive in the personal welfare of the staff.

The Staff Welfare Movement.

Boots do not render mere lip-service in the matter of staff welfare. Much time and thought is devoted to the relationships between employer and employee, and the Welfare Council forms a most valuable link between the workpeople and executive. Broadly, the welfare activities may be divided into three categories—medical, educational and recreational.

As regards the first of these, provision is made for minor mishaps by first-aid rooms established throughout the factories, each room being in charge of a qualified nurse. In addition there is a central surgery with a doctor, trained nurse, V.A.D. nurse and a masseuse. And further, in order to keep in touch with employees who may fall ill, two trained nurses are employed to visit their homes to offer advice and assistance.

To meet the great need for Holiday and Convalescent Homes at reasonable rates the Company have purchased a large house at Skegness, the popular holiday resort on the East Coast, while a Convalescent Home in North Wales is provided by Boots Health Insurance Society.

Educational and Recreational Facilities.

The educational side of the Welfare Movement provides that all employees between the ages of 14 and 16 may attend four hours per week during work time at the Continuation School, where the training includes English, house management, gymnastics, mathematics and drawing. Selected pupils from the Continuation School are allowed to continue training during work time from 16 to 18. Further, the evening school fees for students attending regularly are refunded by the firm at the close of the session. Other facilities offered include special lectures and day scholarships at the University.

The recreational aspect of the Welfare Movement is particularly active. The firm have provided 11 acres of playing fields, including 18 tennis courts, two bowling greens, skittle alley, two cricket pitches, quoit bed and a putting course. A large pavilion with seven dressing rooms, baths, tea rooms, kitchen, larder and accommodation for a residential caretaker was built last summer.

There is also an institute with billiard room, games room, smoke room and large room for dancing and social gatherings. These were provided by the firm and are under the control of an Institute Committee elected by the employees.

Further, there is a commodious modern Swedish gymnasium with spring floor, complete with the latest equipment. It may be mentioned that this gymnasium is in constant use for day classes in the day Continuation School, and for evening classes for employees. The 42nd Nottingham Troop of Boy Scouts is comprised of members of the firm, the Company assisting by the provision of rooms, camping equipment, band instruments, and so on, while there are two large girls' choirs and a weekly hobbies club. The Welfare Organisation also published "The Beacon," a social magazine for the employees.

In addition to these mentioned activities Boots assume a moral responsibility for the well-being of their employees. Thus should any individual worker find him or herself in difficulties he or she may

SURGICAL DEPARTMENT AT BOOTS THE CHEMISTS' BRANCH, CARDIFF.

A VIEW OF BOOTS SPORTS GROUNDS, LADY BAY, NOTTINGHAM.

make an appeal to the Welfare Council with the certainty that the appeal will receive sympathetic consideration, and assistance be forthcoming if the circumstances warrant it.

An Entente Cordiale.

It will therefore be seen that the relationships between the Boots Companies and their employees are far from being soulless transactions in the buying and selling of labour. The management on their part seek in every way to create a favourable working atmosphere and recognise that they have other obligations to their workpeople beyond the paying of wages.

On the other hand, the employees respond right well to a treatment which they believe is actuated not so much with the idea of amassing further profits, but is rather the outcome of sane thinking as to what should be the real attitude of an employer toward his workpeople.

The Future of "Boots."

In concluding this survey of the present-day activities of the Boots concern it may perhaps be interesting to look a little ahead and consider what the future has in store for the undertaking.

As a great manufacturing organisation retailing its products directly to the consumer, its chief care would seem to be the ensuring of a market for those products. The manufacturing end of the business may, we think, well be left to take care of itself. Housed as it is in modern buildings, equipped with plenty of efficient plant and served by the best technical advisers and workers, it could speed up production both economically and with little, if any, outlay of capital.

As regards the retailing side of the business, this is equally efficient and elastic, and is capable of expansion along safe and sure lines.

At the present time there are nearly seven hundred branch shops open, and the policy is to endeavour to open one new shop each week. If this rate of expansion were adhered to there would, of course, be a continuous increase in the sale of the Boots products, while the field for the establishment of further branch shops would by no means be fully cultivated for a good many years to come.

The existing branches are well placed throughout the country and vary in size and importance from the small branches in the lesser populated provincial towns employing three or four assistants, to those fine examples of modern-day chemists' shops such as are represented by the Regent-street branch in the West End of London, the Church-street, Liverpool branch, and the Royal Exchange, Manchester establishment, which employ as many as 70 or 80 assistants each.

For one or other class of branch there are yet many openings, and that the directors are keenly alive not only to the possibilities of establishing new branches, but to developing the business of those already existing, is shown by the recent installation at a large number of shops of surgical departments under the supervision of trained nurses. In these surgical departments a full range of appliances, dressings, nursery requisites and so on is available, and this innovation should considerably augment the Company's gross turn-over.

Eighty Million Customers.

Last year the Boots shops catered for some eighty millions of customers, which is practically equivalent to saying that each of the inhabitants of England, Scotland and Wales was served twice in the course of the year. Bearing this factor in mind and contrasting with the figure of 1911, when 38,000,000 customers entered the Boots shops, it will be seen that the business is wonderfully progressive.

With an industrial revival and a consequent appreciation in the spending power of many millions of people, one would expect last year's record to be easily eclipsed. In any case, such is the initiative and energy behind the organisation that one seems quite safe in saying that the "Boots" of to-morrow will not be the "Boots" of to-day. Sane industrial enterprise and solid development and progress are essential to the Nation's welfare, and to those ideals the great "Boots" undertaking will, we may be sure, not fail to contribute substantially in the future.

An Address

ON

SOME CHANGES IN OBSTETRIC PRACTICE

SINCE THE FOUNDATION OF THE MEDICAL SOCIETY OF LONDON.

Delivered before the Society on Oct. 8th

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F.R.C.P. Lond.,
OBSTETRIC PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL; PRESIDENT OF THE MEDICAL SOCIETY OF LONDON.

As medical societies and medical men advance in years I think it is useful to cast their view backwards on the past in order the better to appreciate the present and to order the future. In order to review the history of a subject of present interest, I propose to consider some changes in obstetric practice, particularly in dealing with cases of contracted pelvis, which have occurred during the 150 years of the lifetime of our Society.

The Medical Society of London was founded in 1773, at an important period in the history of British midwifery. The renaissance of midwifery occurred later in England than in continental countries, and dated from the publication in 1651 of William Harvey's "De generatione animalium" with the chapter on labour, which was the first original English work on midwifery. The conservative principles and the observation of nature which Harvey advocated had been carried on by a succession of teachers, of whom Smellie—one of the greatest obstetricians of all times and countries—had died only ten years before the Medical Society was founded; he was succeeded by William Hunter, Denman, Osborn, and others.

The practice of midwifery during the preceding century was slowly passing into the hands of men-midwives since Clément had been ennobled by Louis XIV. and appointed "accoucheur" to Madame la Vallière in 1673. The advice of Harvey to imitate Nature, "who is a perfect operatrix," had been in the main followed by British obstetricians, who have always considered the interests of the mother superior to those of the child. This attitude, which is indubitably the best for cases where the pelvis and child are of normal dimensions, led to the death of many children and mothers when it came to be applied in cases of contracted pelvis. For cases of slight contraction the powers of Nature were often sufficient, aided by the "hanging-legs" position of the mother (Scipione Mercurio, 1595). Version—an ancient operation revived by Ambroise Paré and recommended by Harvey "when there is necessity for handiwork in the business"—and forceps, invented by Chamberlen and greatly improved by Levret, Smellie, and Benjamin Pugh, proved unsatisfactory when serious contraction of the pelvis had to be dealt with. Experience has shown that these measures involve considerable risk to the mother and child; and the dreadful alternative, embryotomy, necessitates the sacrifice of the child.

Eighteenth Century Advances in the Study of the Contracted Pelvis.

At this time important advances were made in the study of the contracted pelvis. Smellie, in 1754, had first given a representation of the rickety pelvis. At the same time he measured the diagonal conjugate of the pelvis, and R. W. Johnson, in 1769, published his method of direct measurement of the true conjugate diameter with the hand. In 1772 Stein published a description of his internal pelvimeter, and in 1775 Baudelocque described his instrument, which is still used for the measurement of the external diameters of the pelvis. Smellie's plates (published in 1754) and W. Hunter's "Gravid Uterus" (1774) raised the artistic representation of pregnancy and labour to the highest point of excellence. Sir Fielding Ould, who was master of the Rotunda Hospital from 1760–66, made the first observations on the entrance of the head into the pelvis and laid the foundations of the "mechanism of labour." He pointed out the danger of the high forceps operation in cases of contracted pelvis, invented an instrument (the "terebra occulta") for perforating the child's head, and stigmatised Cæsarean section as "a detestable, barbarous, illegal piece of inhumanity."

At this time, too, there was a great movement in the world towards the development of the special study of obstetrics. Lying-in hospitals and chairs of obstetric medicine were being founded, particularly in Italy. At Padua, where Harvey had studied, a chair of obstetrics was instituted in 1769. In Vienna extensive lying-in wards were being built in the Allgemeine Krankenhaus, and were opened in 1784.

L. J. Boër.

In 1786 Lucas Johann Boër (1751–1835) went to study in Paris under Baudelocque, Lauverjat, and others. After spending 15 months in Paris he came in 1787 to England, where he studied under Denman, Caborn, Clarke, and Lowder. His travels in Great Britain, where midwifery was conducted on conservative—or at least expectant—lines following the teaching of Harvey, Smellie, and W. Hunter, made a great impression on Boër; "he had learnt in France what art, in England what nature could do." He carried out his conservative principles while professor of the lying-in wards of the great General Infirmary in Vienna, which he raised to the first position in Europe. Boër held the chair of obstetrics in Vienna for 33 years. In 2926 labours he only employed the forceps 19 times and perforated the head eight times. He laid down very strict rules for the artificial interference with labour, insisting that this should only be resorted to in cases of necessity and then in the gentlest and most suitable manner; "all artificial means apart from strict necessity are mere bungling, involving the risk of torturing and destroying mother and child." While Boër was in Paris he saw the patient Souchot, on whom Sigault had performed symphyseotomy; she was suffering many discomforts as a result of the operation—the uterus was prolapsed, the pubic joint was ununited, and there was incontinence of urine from a fistula. On the continent other attempts were made to solve the difficulty of the contracted pelvis by symphyseotomy and by Cæsarean section, but the results of these operations were not such as to commend them to the British obstetricians.

Lucas's Restricted Diet.

Measures directed towards the mother having proved unsatisfactory, an ingenious attempt to overcome the difficulty of labour in contracted pelves by procuring a small child by restricting the diet of the mother was made by James Lucas, surgeon at the Leeds General Infirmary. His paper was read before the Medical Society of London on Sept. 8th, 1788, was communicated by our founder, J. C. Lettsom, and is printed in the second volume of the Memoirs of the Medical Society of London (1794). The treatment consisted in "temperance in diet, a diminution in the usual quantity and a change in the quality of the food, an increase in exercise, the occasional loss of a few ounces of blood, and the moderate use of cooling aperients. This regimen was more strictly enjoined in the last months of pregnancy from a persuasion that an observance of it in the former months would avail little if neglected in the latter."

Lucas mentions a case of contracted pelvis where embryotomy had been performed in the two previous labours; under his treatment the next labour was remarkably less tedious and the child was delivered without difficulty. He gives other instances of the benefit of this treatment. This method of starving the mother to diminish the size of the child is usually attributed to Prochownick, who published a paper on the subject in 1901. It is interesting to find that it was first published by the Medical Society of London more than a century before. The method, of course, has its limitations and is very rarely employed at the present day, but I have recently seen a patient who was successfully delivered in America of a small child after adopting the treatment recommended by Lucas.

SYMPHYSEOTOMY AND PUBIOTOMY.

In the year 1772 Jean René Sigault published a paper, "An in Partu Contra Naturam Sectio Symphysis Ossium Pubis Sectione Cæsarea promptior et tutior?" Five years later, on Oct. 1st, 1777, he first performed the operation on a patient named Souchot, delivering her of a living child, the mother recovering with the discomforts and inconveniences already mentioned. The Faculty of Medicine of Paris had a medal struck in Sigault's honour, and in many directions there was great enthusiasm over the operation. But next year, in 1778, Piet reported that he had previously delivered the patient Souchot of a large child with prolapse of the cord without much difficulty, and thus took away a little of the credit of Sigault's achievement. Gradually the enthusiasm died down on the continent, and in England the operation was looked on with disfavour, mainly owing to the researches and writings of the Hunters and Denman. The first time this operation was performed in England was in 1782, by Welchman (*Lond. Med. Journal* for March, 1790). The child was dead and the mother succumbed. It was only in Italy that the operation continued to be performed, and that sporadically, till it was revived by Morisani in 1881 and by Pinard in 1900; the latter in 100 operations had a mortality of 12 per cent. for the mothers and 13 per cent. for the children.

Since that date the division of the symphysis and its modification pubiotomy have been extensively practised on the continent, and to a less extent in this country, with a gradually diminishing rate of mortality. The reason why it has not been more in favour is that it inflicts considerable injuries on the mother, and has a higher rate of mortality for the child than Cæsarean section. It has the advantage that in a doubtful case it permits a trial of the effects of labour without increasing the risk of the operation, and may be employed in a limited class of cases of slight pelvic contraction. In this country, however, the enthusiasm of some of its advocates appears to have evaporated. I have never performed the operation, and am of opinion that it is very rarely indicated if the cases of contracted pelvis are properly investigated during pregnancy. The disadvantages of symphyseotomy and pubiotomy have led to other operations for enlarging the pelvic cavity, such as excision of the pubic bones and of the sacral promontory; but these operations have not led to any practical results.

INDUCTION OF PREMATURE LABOUR.

Of this life-saving operation, purely English in origin, we have the first account in Denman's Introduction to the Practice of Midwifery.[1] It was given to Denman by Dr. C. Kelly, who informed him that "about the year 1756 there was a consultation of the most eminent men in London at that time, to consider the moral rectitude of, and advantages which might be expected from the practice, which met with their general approbation. The first case in which it was deemed necessary and proper fell under the care of Dr. Macaulay, and it terminated successfully. The patient was the wife of a linen-draper in the Strand. Dr. Kelly had himself performed the operation three times on the same woman, and twice the children had been born living." Denman defines the limitation of the operation in these words: "It is in those cases only in which there is a reduction of the pelvis to a certain degree and not beyond that degree that this operation ought to be proposed or can succeed." He mentions the case of a lady of title who had had four dead children at term. Labour was induced early in the eighth month of her pregnancy and the child was born alive and survived. Denman induced premature labour by puncturing the membranes, and stated his opinion that the operation is perfectly safe to the person on whom it may be performed. Puncture of the membranes is still used by some obstetricians—e.g., v. Herff—as a means of inducing labour; but the favourite method is the bougie method, first employed by Sir J. Simpson in 1854. It is usually described as Krause's method; Krause's publication, like Simpson's, is dated 1855.

The induction of premature labour has always remained an essentially British and mainly English operation. In France it was opposed by the great authorities Baudelocque and Capuron, and not till 1830 was it favoured by Stolz. In Paris it was first performed by P. Dubois in 1840, but was condemned on insufficient grounds by Pinard in 1900. In Germany Wiedmann wrote in its favour in 1779; his pupil Wenzel was the first to perform it in 1804, and his paper, with Froriep's commendation, led to its adoption in Germany, where it is still practised, but is by no means a favourite operation. In Berlin it was first employed by v. Siebold in 1819. In the Scandinavian countries it was not performed till the year 1827. In America, Whitridge Williams, of Johns Hopkins Hospital, Baltimore, states that he has never found it necessary to resort to the induction of premature labour in contracted pelvis. His erroneous reasoning in adopting this attitude has been pointed out by Dr. Herbert Williamson in an excellent article.[2] I will only add here that in his alternative treatment by Cæsarean section Dr. Whitridge Williams finds it necessary to resort to the mutilation of the mother by hysterectomy with remarkable frequency.

From this brief historical review of the induction of premature labour it will be seen that the operation has met with little favour on the continent of Europe and in America. If one inquires into the cause it is found in three factors—that the operation has been performed in unsuitable cases, at unsuitable times, and by unsuitable means. The cases of contracted pelvis suitable for the induction of premature labour are those with a true conjugate diameter of not less than 3¼ inches; the operation should not be undertaken before the thirty-fifth week from the last day of the last menstruation, and the bougie method of Simpson or rupture of the membranes is the best method for ordinary cases. Champetier de Ribes's bag may be required in special cases; though it has a great disadvantage (amongst others) that it displaces the presenting part. For a pelvis with a conjugate diameter less than 3¼ inches in length Cæsarean section is more suitable, though I have delivered by induction at the thirty-fifth week through a pelvis with a 3-inch conjugate a child who grew up to womanhood. The mother died some years later after an operation for cancer.

Carried out in the manner indicated, induction of premature labour is an excellent operation, giving results to the child less favourable indeed than Cæsarean section, but giving results to the mother even better than those of natural labour at term. The operation has been repeated in one of my cases 12 times, with the result of 12 living children. The larger the pelvis over the 3¼-inch minimum the later the induction should be deferred, but for pelves with a 3¾-inch true conjugate it is better generally to let the patient go to term unless the head is unusually large. It is important that the delivery of the premature child be left to the natural powers, forceps and version being particularly injurious to these infants. Having had a large experience of this beneficial operation, having watched the upgrowing of some of these premature girls to normal womanhood and motherhood, it is more in sorrow than in anger that I see the unpopularity of the operation with many foreign obstetricians, and their failure to follow the three simple rules, above enumerated which are essential for success.

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[1] Third edition, 1801, p. 394.

[2] Jour. of Obstet. and Gyn. Brit. Emp., 1906, vol. ix., p. 195.

Antisepsis and Anæsthesia.

Before I proceed to consider Cæsarean section for contracted pelvis it may be well to review the development of the antiseptic treatment which has revolutionised this and other operations. In 1772 Charles White, of Manchester, published a treatise on the "Management of Pregnant and Lying-in Women." In this work White speaks of puerperal fever as a putrid fever which is contagious and arises from putrefaction of retained products or from the air of lying-in wards. White's contribution to the study and treatment of puerperal fever was important, and has been dealt with very fully by Prof. Adami in his Lloyd Roberts Lecture.

In 1843 Oliver Wendell Holmes published in the *Quarterly Journal of Medicine and Surgery* a paper on "the contagiousness of puerperal fever," in which he adduces strong evidence of the contagiousness of the disease and points out effective means of preventing it. He specially mentions changing the clothes and washing the hands with chloride of lime after visiting cases of puerperal fever; he reports that by adopting these precautions a doctor was able to attend other cases of labour which ran a perfectly normal course. In 1846 Ignaz P. Semmelweis became assistant in the lying-in wards of the General Hospital in Vienna. From 1784 to 1822 these wards had been under the care of Zeller (1784–89) and Boër (1789–1822), and the mortality from puerperal fever had been 1·25 per cent. over the whole period. Under Boër's successor, Klein, medical students were allowed to practise anatomy and to dress suppurating wounds while attending cases of labour, and Semmelweis noticed that the mortality was much higher in the wards attended by the medical students than in those attended by the midwives. In the five years before Semmelweis's appointment the mortality in the students' wards had risen from 6·56 to 9·92, while that in the midwives' wards had fallen from 5·58 to 3·38. Semmelweis adopted the method of washing the hands with chloride of lime with the result that the rate of mortality fell from 8·3 to 2·3 per cent. It is the undying merit of Semmelweis to have pointed out that puerperal fever arose not only from infection from corpses, but from any putrefying organic substances. What putrefaction was due to was shown by the researches of Pasteur in 1860, and Lister in 1867 gave to the world his antiseptic treatment which laid the foundations of the modern aseptic surgery by which the danger has been almost completely removed from operations which a few years ago were uniformly fatal.

The introduction of anæsthesia by means of ether (Morton, 1846) and chloroform (Sir James Simpson, 1847) was one of the greatest advances ever made in medicine. For prolonged operations, I think there can be no doubt that ether is preferable; but in ordinary midwifery cases chloroform, administered *à la reine*, is still the best and safest means of alleviating the pains of labour and it is excellent, administered until the child is delivered, in cases of the classical Cæsarean section. The attempt to produce painless labour by the injection of scopolamine and morphia has not proved successful, and is not free from danger to mother and child.

Cæsarean Section.

Cæsarean section has always been interesting, and never more so than at the present day. The origin of the word Cæsarean is unknown. On the supposed birth of Julius Cæsar by means of this operation, based on an error in the translation of a passage in Pliny, Sacombe has given his opinion in the following terms: "Pliny was a lying historian whom it would have cost no more to split the belly of Aurelia with his pen in order to deliver Cæsar than to split the rocks with vinegar to open up a way across the Alps for the troops of Hannibal."

The first volume of the memoirs of the Medical Society of London contains a most learned paper in the form of a letter addressed to Lettsom on the character of Æsculapius. The writer of the letter describes the birth of Æsculapius by Cæsarean section as mentioned in Ovid's Metamorphoses,

natum flammis uteroque parentis
Eripuit geminique tulit Chironis in antrum.

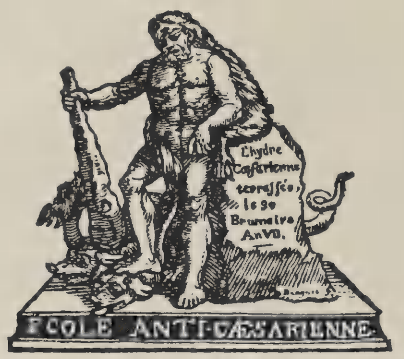
Despite these illustrious examples Cæsarean section attained but little popularity until the end of the eighteenth century, although it had been practised on the continent, with only occasional success. In England it was 20 years after the foundation of our Society, in 1793, that the first successful operation was performed on a living woman by Barlow, of Bolton; the child did not survive. Ambroise Paré (1510–90), having seen two Cæsarean sections performed by his pupil, Guillemeau, with fatal results to the mothers, was opposed to the operation. "Je ne conseillerai jamais de faire tel œuvre où il y a si grand péril sans nul espoir." In 1581 Rousset had published the first work on the subject under the title, "Hysterotomotokie." In 1595 Scipione Mercurio had recommended the operation. He had seen patients on whom it had been performed in Toulouse, where he said it was as well known as bleeding for headache. He gave an illustration of the operation and recommended that the incision should be made to the right of the middle line in order to avoid the spleen.

At the time our Society was founded there was a widespread desire amongst obstetricians to avoid the horrible craniotomy which at the end of the eighteenth century was performed frequently, especially in England. The most eminent of these obstetricians was Jean Louis Baudelocque. In 1796 Baudelocque performed Cæsarean section on a patient who had previously had a living child at term; the patient died three days after the operation. As a result of this unfortunate experience Baudelocque was assailed with the most violent obloquy by Jean François Sacombe, an eloquent, witty, and scurrilous charlatan who occupies such a remarkable position in the history of Cæsarean section that a few particulars of his career may be worth mentioning.

J. F. Sacombe.

Sacombe was born about the year 1750 at Carcassone. After studying obstetrics at Montpellier and in England under Osborn and W. Hunter, he went to Paris to practise as an accoucheur. He gave out that he could deliver any patient with his hand alone, without the use of any instrument. He was especially bitter against those who performed Cæsarean section, and from the year 1790 onwards he disseminated his views by lectures, pamphlets, and posters. In one of the pamphlets he pilloried Baudelocque as a "murderer," for which libel he was condemned to pay a fine of 3000 francs. Unable to pay the fine he fled from Paris, but returned under the altered name of Lacombe in 1813. Having lost his obstetric practice he gained a living by selling secret remedies. "Deserted by Lucina, he paid attention to Venus," wrote a work entitled "Venusalgia," and died discredited and neglected in 1822. In order to carry on his campaign against Cæsarean section, Sacombe founded his "École anticæsarienne" in 1798. Here lectures were given and an annual festival was held at which a silver medal was awarded to one of the pupils; on one side of the medal was the figure of Hercules slaying the Hydra, with the inscription, "No more Cæsarean section"; on the other side a beehive and flying bees, and the inscription "Sacombe's anti-Cæsarean School." The recipient of the medal had the privilege of embracing Madame Sacombe. A statute of Bonaparte was set up in the school, and Sacombe dedicated one of his works to him, and at one time praised the Consul for "muzzling the Cæsarean tigers." In 1815, however, he was imprisoned for writing against the Emperor. Sacombe was a prolific writer, both in prose and verse. In his "Lucine française" (1803) he gives an account of François Rousset, whose work in Cæsarean section had been highly praised by Haller and Portal. Several faculties of medicine had disputed the glory of conferring a degree on Rousset, and Catherine de Médicis had appointed him her physician. "However, I resolved," says Sacombe, "to overturn this colossal statue, to break it and to prove to my pupils that celebrity in medicine can only be desirable when based on talents and virtue. I will demonstrate that Rousset was neither a physician nor a surgeon, but a fanatic and ignorant criminal, and the vile instrument of depopulation of which the infamous Catherine de Médicis made use against the Protestants."

FIG. 1.



En-tête appearing above the foreword to J. F. Sacombe's "Elémens de la science des accouchemens," published at Paris, Germinal an X. (1802).

In his "Elémens de la science des accouchemens" (1802) he styles himself "professeur de médecine et de chirurgie des accouchemens," yet he speaks contemptuously of accoucheurs as "hermaphrodites of the art" and "midwives in breeches." Of Clément, the first "accoucheur," he writes:—

> Clément dut au hazard sa vogue et son crédit
> Il enrichit moins l'art que l'art ne l'enrichit.
> Accoucheur des Laïs, en dépit de Lucine
> Clément fit fortune où maint amant se ruine."

Sacombe's "Elémens" contains a portrait of the author and a plate of the École Anti-Cæsarienne, with a figure of the Cæsarean Hydra struck down 30 brumaire, an vii. (Fig. 1). Of this monster he writes: "Born in the midst of the civil wars which desolated France towards the middle of the sixteenth century the Cæsarean Hydra, attracted by the odour of human blood, has raised again its hideous head amidst the scaffolds which crowned the soil of France at the end of the eighteenth century." He ends his work: "My task is complete; I have avenged nature and consoled humanity in giving the death-blow to the Cæsarean Hydra."

It was, however, not by the École Anti-Cæsarienne nor its discredited founder, but by the almost uniformly fatal results of the operation at the end of the eighteenth century, that the performance of Cæsarean section was rendered infrequent.

Modern Cæsarean Section.

In 1866 Murphy found that of 56 operations in Great Britain 46 had terminated fatally (82 per cent.). Even as late as 1874 the maternal mortality was 54 per cent. in Europe and America. In 1876 Porro introduced his method of amputating the uterus after the section. The effect of this, combined with Lister's antiseptic method, was to lower the death-rate considerably, so that in Truzzi's great collection of all the "Porro" operations published up to 1901, the death-rate was reduced to 24·8 per cent. In 1882 Sänger introduced his method of suture, which still remains the favourite, and though various modifications have since been recommended, such as the incision into the lower segment and the subperitoneal and transperitoneal incisions, the Sänger conservative method, with silk sutures carefully buried by a continuous peritoneal stitch, has advantages over other methods in uninfected cases. The advantages of the Sänger incision and suture are: (1) The rapid delivery of the child in an unasphyxiated condition; (2) the operation can be repeated with safety; (3) adhesions and rupture are rare if the wound be properly sutured with silk.

The results of the modern Cæsarean section in non-infected cases are highly satisfactory. Thus, Routh, in 1910, found a maternal mortality of 2·9 per cent. in "clean" cases, of 10·8 per cent. in cases with ruptured membranes, and of 34·3 per cent. in cases where frequent examinations or attempts at delivery had been made. From those and from figures collected by Holland (who dealt with hospital cases only) it is seen that to obtain a low mortality rate it is necessary that the mothers should not be infected when operated on. In such cases the operation should be free from mortality and in my personal practice has been so.

The safety of the operation in skilled hands has led to great abuse by its performance in cases in which it is quite unnecessary and often quite unsuitable. I have known it proposed for a patient with a large pelvis, solely because she was 38 years of age; she was easily delivered by nature of a 9 lb. child. When we read of hospital staffs and even individuals performing 100 Cæsarean sections in a year, it is time to make a protest against unnecessary operative interference. The most marked instance of "meddlesome midwivery" is contained in a work by I. W. Potter, entitled "The Place of Version in Obstetrics" (1922). This author delivered 1130 women in the year ending August 31st, 1921; of these 100 were delivered by Cæsarean section, and 938 were delivered

FIG. 2.

Obverse and reverse of medal struck in honour of Edoardo Porro in 1901 to commemorate the twenty-fifth anniversary of his first hysterectomy following Cæsarean section.

by version. It is to be regretted that such a line of practice should be advocated, as it will inevitably be attended with disaster in the hands of less skilful imitators.

Francis Bacon commends as excellent for the advancement of learning the keeping of Registers of Doubts, with the caution that "when the doubts be thoroughly sifted and brought to resolution, they be from henceforth omitted, discarded, and not continued to cherish and encourage men in doubting." In obstetrics there have been many doubts. But doubt that natural labour is in ordinary cases preferable to operative labour should have been discarded long ago.

In June, 1923, there appeared[3] a thoughtful and remarkable article on Cæsarean section, in which the author says, "in the minds of certain obstetricians and surgeons Cæsarean section is the only method by which a self-respecting patient can be delivered and maintain her standing in the community." He also states "that the mortality statistics of Massachusetts show that of the women dying during pregnancy and labour in a given period approximately one-third die of complications which have been treated by Cæsarean section." Finally, the writer of the article appeals for protection for women in childbirth against the ill-judged enthusiasm of the untrained obstetrician. Cæsarean section, to which Sacombe thought he had put an end in 1798, has shown marked evidence of revival, and his hydra has developed heads non-existent in his day. The performance of Cæsarean section for cases of placenta prævia, accidental hæmorrhage, malpresentations, and eclampsia is being overdone, though not to the same extent as for "contracted pelvis."

It is sad that such a beneficial operation as Cæsarean section, which has been developed to such a pitch of perfection that a woman, however deformed, can be delivered with safety to herself and child, should be brought into discredit by being performed in cases for which it is unnecessary.

I have endeavoured to show some of the changes which have occurred in the treatment of contracted pelvis in the lifetime of the Medical Society of London. Further improvement of the treatment depends on more accurate measurement of the pelvis and fœtal head, probably by means of X rays. Every woman should have her pelvis measured to see if she is fitted for childbearing. During pregnancy she should be examined at the thirty-fourth week to ascertain the presentation of the child and its size relative to that of the pelvis. If the pelvis is contracted, it should be treated by one of the methods suitable for the particular case. Of these methods at the present time, in my opinion, induction of premature labour is employed too little and Cæsarean section too much.

As opinions are of less value than facts, I give the results of three years' practice at University College Hospital, where the routine mentioned above has been adopted. In the three years (1920, 1921, and 1922) 5647 women were delivered. Of these premature labour was induced for contracted pelvis 113 times, all the mothers and 101 of the children surviving; Cæsarean section for contracted pelvis was performed 32 times, all the mothers and 30 children surviving. Craniotomy was performed four times (twice for dead children and twice for hydrocephalus); the four mothers recovered. Forceps were used, for various reasons, 168 times—i.e., in less than 3 per cent. of the cases—all the mothers recovering. I am indebted to the obstetric registrar, Mr. Leslie Williams, for these figures.

Cæsarean section entails risk of hernia, of adhesions, and of rupture in subsequent pregnancy. These risks are probably avoidable in aseptic cases by proper suturing and sutures; their magnitude can only be ascertained when obstetricians publish all their cases instead of a selection of cases done in favourable conditions before or in the early stages of labour, later cases being treated by craniotomy or hysterectomy. The sterilisation of a woman after Cæsarean section in an uncomplicated aseptic case is, in my opinion, not justifiable; in complicated cases hysterectomy is sometimes required.

In conclusion, I hope I may be pardoned for bringing a somewhat technical subject before the Medical Society of London. In the past some hard things have been said of obstetricians; in recent days, however, they have been commended as integrators of medicine. Agreeing with Sir Clifford Allbutt as to the importance of that integration, I have placed my views before a Society which, by its constitution and practice, is the best example of the advantage to be derived from discussion of medical subjects by physicians, surgeons, and general practitioners.

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[3] Boston Medical and Surgical Journal, June 14th, 1923.

An Address

ON

MANIPULATIVE SURGERY.

Delivered before the Section of Orthopædics of the Royal Society of Medicine on Oct. 2nd

BY R. C. ELMSLIE, M.S. LOND., F.R.C.S. ENG.,

PRESIDENT OF THE SECTION.

THE use of manipulative methods in surgery is constantly being brought before the public and has perhaps been specially prominent during recent years. It is a branch of work frequently taken up by unqualified practitioners, probably because it is easily acquired and can be carried out with comparatively little training or experience and with very considerable immunity from gross accidents. Formerly such practitioners were called "bonesetters," claiming that they replaced small bones in the course of their manipulations. Wharton Hood states that Hutton really believed that he did this. This term, "bonesetter," is a very ancient one and was formerly applied to both regular and irregular practitioners. In the seventeenth century there was a "bonesetter" and an "assistant bonesetter" on the staff at St. Bartholomew's, both of them presumably surgeons. Recently, however, the irregular practitioner has become known as a "manipulative surgeon," rather than as a "bonesetter." The claim to replace small bones is difficult to sustain in view of the knowledge of anatomy now possessed by many of the general public and of the possibility of confirmation by X ray photographs. It is now more often made by the comparatively new school of osteopathists, rare still in this country, but very numerous in America. These practitioners, in spite of radiography, are able to propound their claims to replace bones in the comparatively complicated osteology of the spine.

Sir James Paget investigated bonesetting, and published a clinical essay upon the subject in 1867. His teaching was followed up by Howard Marsh, who lectured almost yearly at St. Bartholomew's upon the subject. The following paragraph from Howard Marsh's writings is worthy of quotation, as it puts many of the facts in a nutshell:

> "Chirurgery, or handicraft, began, as we may well believe, in attempts to pull-in dislocated bones, to straighten distorted joints, and to restore movement to stiff limbs. In this dawn of the art nothing was known of anatomy or pathology; it was only seen that a limb was bent or stiff, and force was employed to overcome the defect, just as it might be used to straighten a crooked bar, or loosen a rusty lock. Soon, however, the primitive operators of those early days became ranged in two groups: the mere empirics, who went straight to the point of trying what force would do; and those who endeavoured to ascertain the nature of particular cases and the difference between one case and another—those, in other words, who cultivated pathology and diagnosis in order that they might use force with safety and advantage. The results of practice conducted on these different lines can easily be imagined. The empirics, applying force in all cases alike, and thus

involving their patients in a mere game of chance, did good whenever such untempered force as they could use was appropriate, and harm whenever it was unsuitable; those who used force only when they could see a reason for doing so, and when they thought it was safe, while they did little harm, often, as their diagnosis was very rudimentary, missed an opportunity of producing a cure. In these conditions the empirics frequently had the best of it. Regular, but as yet very ill-informed, practitioners were so often beaten in their encounters with disease that they lost credit in the public eye; while the empirics, making the most of their cures, and not seldom laying the blame of their failures on the surgeon whose previous treatment they alleged had done all the mischief, were credited with powers that approached the miraculous. And we can understand their success, for every surgeon now well knows that instances are common enough in which pain and limited motion, resulting from sprains and other injuries, may at once be set right by even rough and unskilled movements, or, indeed, by an accidental wrench."

Wharton Hood, gaining experience from working with the bonesetter, Hutton, showed how some of the methods of treatment of injuries formerly in general use led to the production of stiff joints which could be easily righted by simple manipulation. More rational methods of treating injuries, together with the evolution of a well-trained and experienced body of masseuses, have greatly diminished the number of cases of gross stiffness of joints after injury, the class of case most often quoted by Paget, Marsh, and Wharton Hood. Yet the dramatic successes of the unqualified manipulator continue, and it behoves the medical profession to look to its methods and to find out why so many of these cases pass into the hands of the unqualified.

Factors in Favour of the Unqualified Practitioner.

Certain external factors must inevitably work in favour of the unqualified. Of these one of the principal is the inherent tendency of the public to believe that the irregular practitioner must have some peculiar ability, either a special skill in methods of manipulation unknown to the profession, or an almost occult power of seeing what is wrong inside or what is the effect of his manipulations. A second factor is the unrestricted power of the unqualified to advertise, either directly or through the mouths of their patients. A third is perhaps the most important: it is that the failures of the unqualified are in almost every case hidden. The patient who visits a bonesetter and is cured boasts of the fact widely, but those who are not cured or who are made worse are perhaps a little ashamed that they have been gulled, they say nothing of their experience, unless perhaps to a medical man who subsequently treats them, and who discreetly maintains silence. For the failures of the unqualified manipulator are numerous, almost as numerous as his successes. The gross cases quoted by Marsh, who mentions two cases of sarcoma and one of spinal caries treated by manipulation, are perhaps uncommon at the present day. Yet I personally have seen many failures by commission or omission. Among the former I may mention myositis ossificans around the knee, rendered so bad by the manipulations of a bonesetter that the patient had to submit to complete rest of the joint for two and a half years before movement returned; a youth with a slight spinal injury subjected to manipulation of the coccyx, which was loosened, and the patient converted into a confirmed neurasthenic with coccydynia; a young woman converted by osteopathic manipulation into an apparently hopeless neurasthenic; and a woman with a large loose body in the knee which was manipulated into such a position that it blocked full extension of the knee for four years.

I need only mention more gross cases of obvious fraud, the treatment of a joint with bony ankylosis by manipulations repeated over a period of a year, the patient being promised a restoration of mobility; a dislocated thumb treated for three months with improvement of movement *in the direction of excessive hyperextension;* and a shoulder stated by a bonesetter to be dislocated, whereas it was normal; when confronted with an X ray showing the joint in place, he countered with the X ray of a dislocated shoulder, which he demonstrated as the normal position.

Errors of omission are also not uncommon. The unqualified manipulator refuses to treat a patient on the ground that the condition does not come within his province and a cure subsequently results from a simple manipulation carried out by a qualified medical man. In addition to these, cases in which manipulation has failed to cure the original condition or in which there is a recurrence of trouble (for example, displacement of a damaged semilunar cartilage) come within the experience of most of us. I do not suggest that the bonesetter is to be blamed for this last class of failure. Usually in these cases he has carried out a rational method of treatment. If his patient has any complaint to make, it is because he has been promised a certain cure where no certainty was possible. But when the failure is due to insufficient care in diagnosis, or to an inadequate knowledge of pathology, or to the use of irrational methods, then the manipulator should be blamed.

We all have our failures; medicine is not an exact science, and no doubt many of us have failed to cure patients who have subsequently been successfully dealt with by the unqualified manipulator, just as some of us fail to cure patients who are afterwards cured by our colleagues, or as the unqualified manipulator has failed to cure patients with whom we afterwards succeed. The real interest of the profession, and particularly of the orthopædic surgeon, is to frame such rules of treatment as will leave as small as possible a number of cases for the unqualified manipulator to treat.

Suggestions for the Orthopædic Surgeon.

Looking back in my own practice I venture to make these suggestions to you all. First and foremost, in treating all bone, joint, and muscle injuries, first form as accurate as possible a judgment of the pathology of the condition present. When there is an inflammation or other condition indicating rest and contraindicating mobilisation, say so. If your judgment is accurate, your patient will not be cured by a practitioner who takes up the opposite view. A common error is to assume that the inflammatory reaction to a simple injury necessitates rest. This is not so; a sprain, provided that an important ligament is not ruptured or unduly stretched, recovers most rapidly with normal use, the joint being supported if necessary. An injury to a small portion of muscle requires use as soon as the pain felt will permit it. If the internal semilunar cartilage in the knee has been damaged and displaced, use of the knee as soon as possible after the displacement has been reduced is the best method of treatment. Some years ago I had to treat an oarsman in training for an important boatrace who displaced the internal semilunar cartilage nine days before the race. The displacement was reduced 12 hours after it occurred, and the patient was only kept out of his boat for 24 hours. In the end he rowed with an apparently normal knee and has had no trouble since. This leads me to a second point. Never advise operation for removal of a semilunar cartilage which has been once displaced and successfully reduced; in a large number of cases the accident never recurs.

One often meets with patients who give a history of recurrent trouble with a knee which sounds superficially like a displaced cartilage, but in whom true locking of the knee has been absent. It is my custom to treat all these cases by manipulation, warning the patient that if the cartilage is damaged there may be a recurrence of the trouble necessitating operation. I believe that many of the so-called cartilage injuries cured by bonesetters come into this class, and that there has never been any damage to the cartilage at all. Other cases so cured are analogous to those in which the cartilage is displaced once and once only. In them the cartilage is presumably displaced by the manipulation into a position in which it gives no trouble and is not liable to become again displaced. I do not believe that the bonesetter has any special tricks of manipulation. If he has, he ought to describe them instead of keeping his knowledge to himself, just as any of us would put on record any new method we had devised. But, as I say, I do not believe that he has any such methods, and this opinion is borne out by the fact that many of us have treated patients with cartilage injuries which have been manipulated by bonesetters not simply once but many times.

It would take me too long to enumerate the many other conditions amenable to treatment by manipulation; they range from joints and muscles painful on account of apparently trivial restriction of movement, to gross cases of stiff joints, of adherent muscles, and of nerves such as the sciatic, which are fibrosed after a long-standing neuritis. I can only make this suggestion, that whenever there is a possibility of improvement by well-judged manipulation, try it. If your pathology is correct, you will do no harm and often you will cure your patient. I do not suggest that you can always promise a cure; how much you can promise must always depend upon individual knowledge and experience. Further, I would say that whenever a joint or muscle is apparently normal, yet painful, it is worth while to try a manipulation. Disease and mechanical defect having been eliminated, no possible harm can result, and in nine cases out of ten some minor adhesions, undetectable by clinical examination, will be felt to give and the patient will be cured.

I believe that we fail to cure by manipulation most often by our failure to give the method a trial. Let us use it freely, restrained only by an adequate knowledge of pathology.

THE RELATION OF GASTRIC ULCER TO CARCINOMA.*

By JOHN MORLEY, Ch.M. Manch., F.R.C.S. Eng.,
HON. ASSISTANT SURGEON, MANCHESTER ROYAL INFIRMARY; HON. CONSULTING SURGEON, ANCOATS HOSPITAL; LECTURER IN APPLIED ANATOMY, MANCHESTER UNIVERSITY.

The modern doctrine that gastric ulcer frequently undergoes cancerous degeneration, or, conversely, that cancer of the stomach very commonly originates in simple chronic ulcer, has derived most of its authority from workers in the Mayo Clinic. The vast quantity of clinical and pathological material at Rochester, the high level of achievement there in the taking and digesting of case records, and the number of skilled pathologists working in closest contact with the surgeons, all combine to give a power of compiling statistics on such a scale as to command the almost envious respect of the rest of the surgical world.

U.S.A. Literature.

W. J. Mayo,[1] in 1907, stated that "in 54 per cent. of the 69 cases of cancer of the stomach operated upon in 1905 by Dr. C. H. Mayo and myself, the clinical histories and pathologic examinations of removed specimens made it certain that the cancer had its origin in ulcer." In 1909, Wilson and MacCarty,[2] pathologists to St. Mary's Hospital, Rochester, published a report on 218 specimens of resection for ulcer or cancer, 210 being gastric. Excluding a few rarities like gastric adenoma, they found in the material 47 simple ulcers. "Of the 158 cases remaining 5 were ulcers with suspicious aberrant epithelial proliferation, and were labelled 'doubtful.' Of 153 cases of undoubted cancer left, 109 (71 per cent.) gave enough gross and microscopic evidence of previous ulcer to warrant labelling them 'cancer developing on ulcer.' In 11 other cases (7 per cent.) there was considerable evidence of preceding ulcer, but not enough to warrant placing them in the former group. In only 22 per cent. was there little or no pathological evidence of preceding ulcer." In May, 1910, MacCarty[3] quoted his earlier conclusions that 71 per cent. of cases of cancer of the stomach are associated with a definite ulcer, and added, "68 per cent. of the resected ulcers of the stomach, including the duodenal ulcer which rarely becomes malignant, were associated with carcinoma."

Wilson and McDowell,[4] in 1914, in a paper based on 339 cases of resected gastric ulcer, gave further statistics of somewhat similar import, and stated: "It seems probable that gastric cancer rarely develops except at the site of a previous ulcerative lesion of the mucosa." In a paper published in 1920 MacCarty[5] used these words: "Most chronic gastric ulcers larger than 2 cm. in diameter are carcinomatous. The converse of this is not true, because many chronic gastric ulcers smaller than 2 cm. in diameter are carcinomatous."

British Literature.

Among the leading British authorities on the subject Sherren,[7] writing in 1920, quotes three cases of gastric ulcer in which he did a simple gastro-enterostomy, who died of carcinoma seven, five, and four years after operation, though it would appear possible that two of these may have been malignant from the first. He states that in 135 ulcers removed with a diagnosis of simple ulcer, showing no malignancy to the naked eye, 6 (or 4·4 per cent.) showed carcinoma starting in the edge of a simple ulcer on microscopical examination. He adds: "In 57 gastrectomies for cancer, 14 (or 25 per cent.) showed definite microscopic evidence that the malignant disease started in the edge of a chronic simple ulcer." Moynihan,[8] in his recent Hunterian Lecture, says: "Of the cases of cancer of the stomach that I see upon the operation table a steady average of two out of three give a past history that is extremely suggestive of gastric ulcer." He states that in 18·5 per cent. of his excised chronic ulcers, giving no naked eye suspicion of malignancy, one edge of the ulcer only shows early malignant change. (This 18·5 per cent. is a somewhat striking contrast to Sherren's 4·4 per cent.) Walton,[12] in a series of 150 cases of cancer, found evidence of preceding simple ulcer in 45.

We see, then, that these three authorities lend their powerful support, if to a somewhat modified extent, to the teachings of the Mayo Clinic on the subject. H. J. Paterson,[9] on the other hand, is entirely sceptical, and regards the matter as not proven. He states his own experience that only 1 per cent. of the patients on whom gastro-enterostomy is performed for simple ulcer die later of cancer. Spilsbury[10] summarises his conclusions on the morbid histology as follows: "There are commonly found at the edge of the ulcer gland cells which have penetrated deeply into the scar tissue and are cut off from the regenerating glands. They may exhibit an atypical glandular arrangement, or may form narrow columns of cells; isolated cells are also seen. It is these cells detached from the regenerating epithelium and buried in the fibrous tissue of the ulcer which are sometimes referred to as pre-cancerous, and which, from their position and irregular arrangement, are regarded by others as indicating a malignant transformation in the ulcer. It is owing to this interpretation having been placed on the cells by the investigators at the Mayo Clinic that they report a percentage of 68 of the presumed peptic ulcers removed by operation as showing microscopical evidence of malignancy." Spilsbury concludes that malignant transformation of a peptic ulcer must be an uncommon event.

A Scandinavian View.

An important paper on the subject by N. A. Nielsen[11] appeared last year in the *Acta Chirurgica Scandinavica.* Nielsen believes that there is no possibility of agreement on the histological evidence, and turns to the clinical side of the problem. His conclusions are based on a series of 221 ulcer patients, followed for a period of 2½–19 years after the completion of a course of medical treatment. He found that of these 221 patients, 155 had had ulcer symptoms for more than six years, and in this group two only developed cancer. Of 66 patients with ulcer symptoms under six years in duration no fewer than ten developed cancer. This striking contrast Nielsen explains by arguing that the ten cases that died of cancer under six years after the onset of their ulcer symptoms were ulcer-simulating cancers from the beginning, and he concludes that a patient suffering from simple ulcer has no greater liability to cancer of the stomach than an ordinary individual.

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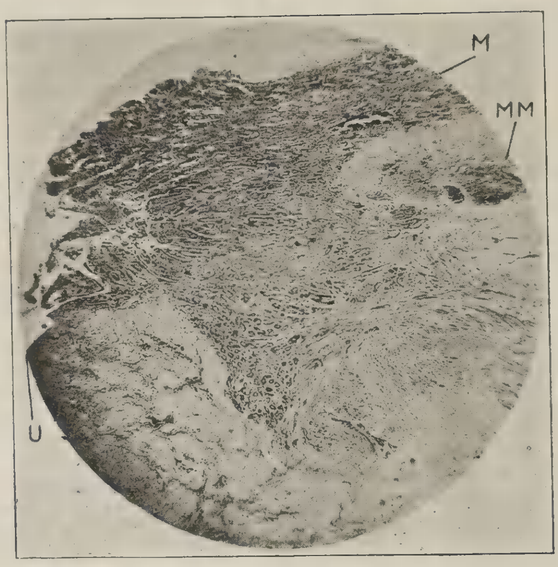
* Read before the Manchester Surgical Society.

The weakness of Nielsen's very careful investigation lies in his material. Only 92 of his 221 patients were operated on, and the remaining 129 were diagnosed on clinical grounds alone. They would therefore almost certainly include some cases of extra-gastric lesions simulating ulcer, and as Nielsen himself admits, a considerable number of duodenal ulcers. I do not think that this criticism vitiates Nielsen's conclusion, but it does undoubtedly deprive his results to some extent of statistical precision.

Terms of Present Investigation: Classification of Material.

I have set myself in this investigation to determine whether the clinical and histological data in my own small series of cases support or contradict the findings of the Mayo Clinic pathologists that 71 per cent. of cases of cancer of the stomach originate in simple ulcer, and that 68 per cent. of apparent simple ulcers are microscopically cancerous. I desired, in other words, to determine whether a patient suffering from chronic gastric ulcer is in graver danger of developing cancer of the stomach than an average healthy person of similar age.

FIG. 1.



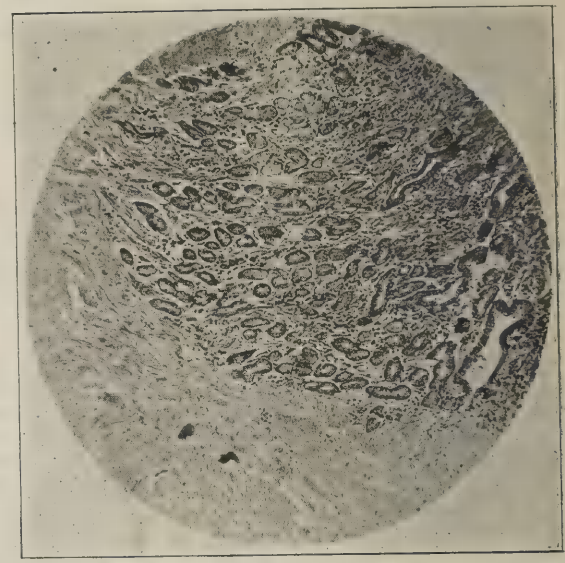
Microphotograph showing edge of simple ulcer with irregular gland tubules drawn below level of muscularis mucosæ by scar tissue. M, mucosa. MM, muscularis mucosæ. U, base of ulcer.

The cases on which my conclusions are based have been under my own care, and the records have all been taken by me personally or by residents under my direct supervision. In all cases I can vouch for the accuracy of the histories and all relevant details. The cases fall naturally into three groups. Group 1 is a series of 50 cases of chronic gastric ulcers, removed either by partial gastrectomy or local excision. I considered them all simple ulcers on naked-eye examination after removal, and they have all been subjected to careful microscopical examination. Group 2 is a small series, supplementary to Group 1, of ten chronic ulcers treated by simple gastro-enterostomy. Group 3 is a series of 56 cases of clinically proved cancer of the stomach. These three groups will now be discussed in detail.

Group 1.—In collecting this series of 50 chronic ulcers I have carefully excluded cases of duodenal or pyloric ulcer, for I agree entirely with Moynihan's opinion that almost all cases of so-called pyloric ulcer are really in the first part of the duodenum, and no one claims that duodenal ulcers frequently undergo cancerous degeneration. The pre-pyloric ulcer, on the other hand, is definitely gastric, and is usually separated by at least ½ inch from the pyloric ring. One gastro-jejunal ulcer has been included in the series. The method of dealing with the specimens has been as follows. The stomachs, after removal (and all except two were partial gastrectomies), have been stuffed with cotton-wool to preserve their shape, and fixed in Kaiserling fluid. They have then been slit open, usually along the greater curvature, and as many blocks as seemed necessary have been cut, and a rough diagram made to show the position of the blocks in the stomachs. This part of the work has been done in most cases by Dr. J. H. Dible, lecturer in pathology at the Manchester University.

The results of the histological examination of these 50 cases must now be described. Five cases proved to be definitely malignant on microscopical examination, and form a small but highly important subdivision which will be described in detail below. Of the remaining 45 cases, 6 showed irregularity of the glandular epithelium at the edge of the ulcer, which might conceivably be held to indicate the earliest phase of a malignant transformation. In one case this change takes the form of a branching, almost papillomatous arrangement. In 4 there is some irregularity of the arrangement of cells in the tubules at the edge of the ulcer, but what is of more importance, an apparent invasion by some tubules below the line of the muscularis mucosæ (Figs. 1 and 2). Transgression by glandular epithelium across the line of the muscularis mucosæ I take to be the first indisputable evidence of cancer in a gastric lesion; but in these 4 cases the grouping of tubules in their suspicious surroundings is so similar in arrangement and so circumscribed in extent that I have formed the opinion quite definitely that it is merely an infolding of the epithelial edge by scar tissue in an attempt at healing, and is not evidence

FIG. 2.



A higher magnification of the irregular epithelium shown in Fig. 1.

of a malignant change. The remaining one of this group of 6 suspicious ulcers shows a cluster of tubules under the muscularis mucosæ at a point far removed from a large and perfectly simple ulcer. I am sure that this appearance is due to an irregular depression in the mucosa, and only include it in the group to drop it out again. The duration of ulcer symptoms in the other 5 cases was 16, 1, 7, 12, and 4 years respectively.

We have, therefore, in this group 5 definite cancers, 5 ulcers which some might suppose to be early cancers, but which I consider to be healing simple ulcers, and 40 simple ulcers which I believe no competent morbid histologist could accuse of malignancy.

I must now describe very briefly the five cases of definite cancer in this group:—

CASE 1.—Male aged 33. Five years' history of pain two hours after food, at first in periodic attacks lasting a week, with intervals of five or six weeks. The last 12 months pain has been felt daily, being relieved by food. Has been vomiting and losing weight lately. Appetite good, but fears to eat. X ray examination showed a filling defect in prepyloric area, which Dr. J. M. W. Morison, the radiologist, thought most probably due to a simple ulcer.

Operation.—Operating with an open mind as to its malignancy, I found a hard mass on the lesser curvature near the pylorus looking very like a growth as seen from the outside, with minute white nodules on the peritoneum a short distance from the main mass. Gastrectomy was performed, but on opening the stomach after removal there was a shallow ulcer, with none of the characteristic raised everted edge of cancer, but a hypertrophic mass of what I took to be scar tissue on the outer coats. The specimen was sent to Dr. Dible as a chronic simple ulcer, and he reported as follows: "Your clinical instinct was a better guide than your post-operative opinion, for it is a malignant growth undergoing ulceration. There is very widespread penetration by the tumour tissue. The little nodules on the pyloric antrum are malignant deposits. All of this goes to suggest that the two conditions, ulcer and cancer, are in such a case in no way connected, except that the malignant growth sooner or later undergoes ulceration. From the appearance of the sections I should say that the prognosis is very bad."

Thirteen months afterwards this patient returned to see me with a secondary deposit in the umbilicus and palpable nodules in the peritoneum.

CASE 2.—Male aged 40. History of seven years' pain, two to three hours after food, in periodic attacks at first. Pain more continuous the last 12 months, with loss of weight and appetite. X ray examination showed pyloric obstruction, and the pylorus and duodenum were not outlined.

First Operation.—A large hard ulcer was found extending from the pylorus some 2 inches along the lesser curvature, with almost complete pyloric obstruction. The ulcer was considered malignant, and a posterior gastro-enterostomy performed.

Second Operation.—Three weeks later the pyloric half of the stomach was resected by the Billroth 2 method. The ulcer seen from the interior after removal appeared to be a large chronic simple one, with dense fibrosis round, but sections showed definite cancer.

The patient did remarkably well at first, but died two years later with recurrence in the liver.

CASE 3.—Male aged 61. Two years' history of pain two and a half hours after food, relieved by taking more food. Little vomiting. Appetite fairly good. Great loss of weight latterly. Previous health good, except for liability to bilious headaches. He never had stomach pains before the last two years. On examination there was a vaguely palpable tumour in the epigastrium. X ray examination showed a filling defect of the pylorus.

Operation.—A hard mass was disclosed in the pyloric region. A Polya gastrectomy was done, and to the naked eye after removal it was doubtful whether the large ulcer present was simple or malignant. Microscopical examination showed an ulcerating adeno-carcinoma with a marked fibrous reaction round it.

This man was operated on over three years ago and is still in good health, with no sign of a recurrence.

CASE 4.—Male aged 66. Two years' history of pain one hour after food, periodical at first and relieved by vomiting. Much emaciation of late. The preoperative diagnosis was simple ulcer.

Operation.—A mass was found extending from the pylorus along the lesser curvature, which was considered to be malignant. Partial gastrectomy was done, and an ulcer with a deep crater was found, which I thought was probably simple. Dr. W. B. Anderton examined it and found it was an adeno-carcinoma.

It should be noted that the age at operation of these four cases was 33, 40, 61, and 66, while they had been ill 5, 7, 2, and 2 years respectively. The four cases are of great interest in our present discussion. They all simulated simple ulcer in their clinical history, in that the pain was periodic, occurred some long time after food, and was relieved for a time by taking food, while the appetite in most was good. But I can find nothing in the clinical histories or the histology to suggest that they were cancers originating in simple ulcer. I would maintain rather that they were slow-growing ulcerating cancers of a type that simulates simple ulcer, and that they were cancers from the first. I do not believe that the onset in the last few months of continuous pain, vomiting, and emaciation meant a change from simple to malignant ulcers. A much more probable explanation is that these symptoms meant the development of pyloric obstruction. The presence of scar tissue in the base of an ulcer cannot be accepted as evidence of an old inflammatory lesion, for in cancer of many parts of the body, such as, for example, the breast or colon, scar tissue abounds.

CASE 5.—This case is somewhat different in character. A female, aged 31, gave a history of ten years' periodic attacks of pain after food. Two years ago she was explored by a well-known surgeon with a provisional diagnosis of gastric ulcer. He examined the stomach carefully, but could find no trace of ulcer, and removed a chronically inflamed appendix. Relief after the operation was of short duration. The symptoms returned, and for the last few months before she was referred to me she had had unmistakable symptoms of pyloric obstruction. When I saw her there was a palpable sausage-shaped tumour at the pylorus, unusually smooth and soft for cancer, and visible peristalsis. She was losing weight rapidly, vomiting all her food, and had evidently almost complete pyloric obstruction.

Operation.—I found what felt like a firm fleshy growth involving the pyloric half of the stomach, with enlarged coronary and suprapyloric glands. I did a very extensive gastrectomy, and on slitting the stomach up afterwards found multiple ulcers of the mucosa throughout the pyloric half, with only islands of mucous membrane left between them, while the palpable tumour appeared to be due to an enormous hypertrophy of the muscular wall in the pyloric region, secondary to a cicatricial pyloric stenosis. Once again the microscope disproved the naked-eye diagnosis. It was an intensely active spheroidal-celled cancer, with great tendency to ulcerate. But I cannot accept this as a case of cancer following ulcer, for a careful exploration two years before had disclosed no sign of ulcer, and I think it much more probable that the indigestion of eight years' standing before that exploration was reflex pylorospasm, probably originating in the appendix, and that the cancer was a later and, so to speak, accidental development.

Group 2.—This small series of ten cases is soon dealt with. It consists of 10 cases of chronic ulcer in which simple gastro-enterostomy was done, and the ulcer left in situ. The duration of pre-operative ulcer symptoms averaged 9·3 years, and the average age of onset was 31·1 years. Both these figures, as will be shown below, correspond very closely with those of Group 1, and afford a similar contrast with the cancer group. But such material is not very conclusive in our present inquiry unless followed for a large number of years after operation. Of these 10 cases, 1 was well for a year and then relapsed and died of hæmatemesis in the medical wards of the Royal Infirmary, when post-mortem examination showed an active simple ulcer; 1 was in good health for five years and then died of lung trouble without any gastric symptoms; the other 8 cases are alive and well 4, 6, 4, 3, 10, 10, 9, and 1 year after operation.

Group 3.—This group consists of 56 cases of clinically proved cancer of the stomach, and it is necessary in the first place to set forth the evidence in favour of the accuracy of the diagnosis. Forty-six of these cases were operated on, but in only 11 was I able to do a gastrectomy, and I have only been able to trace the specimens and microscopical sections, the final proof, in 9. Almost all of those operated on without removal of the growth, however, showed, besides the primary growth in the stomach, definite and advanced metastases either in the glands, the peritoneum, or the liver. I think, therefore, that there was no possibility of error in the diagnosis of the 46 cases operated on. Of the remaining 10 of the series, in 4 the clinical diagnosis, in each case based on a characteristic history with a large palpable mass in the stomach, was confirmed by X ray examination. In the remaining 6 cases there was a characteristic tumour in the epigastrium, with, in all but one case, secondary masses in the liver or omentum, and in the one case without them the history and the palpable tumour were typical of cancer of the body of the stomach. I have carefully excluded a number of cases in which the evidence in support of the diagnosis was not quite conclusive, or in which the records were incomplete, and I have no doubt that all the 56 cases were genuine cancers of the stomach.

Results in Group 3.—The main purpose of this group is to determine whether there was clinical evidence of previous ulcer in a large proportion of the cases, and the result is somewhat striking. In 52 cases there was no history of previous indigestion before the onset of the symptoms of cancer. Of the remaining four cases one had an illness ten years before which was diagnosed as gastric ulcer, and had been quite well after that until 12 months before operation, when her cancer symptoms began. One had attacks of indigestion for ten years before operation, but no hæmatemesis. One gave a history of liability to painless bilious attacks for years. Of one it was simply recorded that he had had years of indigestion. In only three of the 56 cases, therefore, did the clinical history afford any evidence at all of a preceding simple ulcer, and in all three the evidence was inconclusive. The arbitrary division in point of time between the "history of present illness" and "history of previous indigestion" must vary greatly with the different writers on the subject. To summarise a case, as some authors do, in some such words as "History of previous ulcer two years," or "History of cancer nine months," seems to me to be straining our credulity, since it is so much more probable, in a case of gastric cancer with a total history of two or three years' illness, that symptoms have been due to cancer from the first.

Groups 1 and 3 Compared.

The best argument I can bring in favour of this view is to compare the average duration of gastric symptoms in the cases of Group 3, the proved cancers, with the 45 cases of simple ulcer in Group 1. In 54 cases of proved cancer of the stomach in which the point is specifically recorded, the average duration of gastric symptoms was 12·7 *months* (the longest being five years and the shortest five months). In the 45 cases of proved simple ulcer in Group 1 (excluding the five cases of cancer), the average duration of pre-operative gastric symptoms was 10·3 *years* (the longest being 33 years and the shortest one year). On comparing the age at which gastric symptoms first appeared we find a marked contrast between the two groups. In the 45 cases of simple ulcer the average age of onset was 32·8 years; whereas in the 56 cancer cases the average age of onset was 49·9 years. There is, therefore, an average difference of 17 years as regards age of onset between the two groups. The sex incidence is similar in the two groups. The ulcer group contains 25 males and 20 females, while the cancer group consists of 33 males and 23 females.

It is a point of some significance that 13 of the 56 cases of cancer simulated ulcer in the periodicity of their attacks during the earlier stages, and in the preservation of a good appetite, with temporary relief from pain on taking food. In all of these cases the duration of cancer symptoms was longer than the average. This group of 13 cases, with the four cases already discussed in Group 1, lends support to the view that there is a not uncommon type of cancer, comparatively slow in growth, for a while at any rate, which is capable of producing practically the same symptoms as those we associate quite empirically with simple ulcer. I regret that test meals have not been done in enough of my cases to determine whether free HCl is retained in the gastric juice of these ulcer-simulating cancers. The chief clinical distinctions between this type of cancer and simple ulcer consist in the rapidly increasing frequency of the attacks, in spite of medical treatment, until they become continuous, and in the wasting, which is generally out of proportion to the degree of pyloric obstruction.

If the arguments that I have based on the material set forth in this paper be accepted, it may be urged that we lose one of the chief justifications for partial gastrectomy as the routine operation for the treatment of chronic gastric ulcer—viz., the danger of eventual malignancy. In my view, however, the operation of partial gastrectomy for ulcer is justified on two very sound grounds. The first is that the difficulty of distinguishing on the operating table between simple chronic ulcer and ulcer-simulating cancer is so great as to be sometimes insuperable. The second is that partial gastrectomy, either by the Polya or the more conservative Schoemaker method, has proved the most efficient means at our disposal for the restoration to normal health of patients suffering from simple chronic ulcer of the stomach.

Summary and Conclusions.

(1) While one cannot deny the possibility of cancer developing in the edge of a chronic gastric ulcer, or in some part of a stomach that is or has been afflicted by a chronic gastric ulcer, this investigation provides no evidence that the development of cancer on gastric ulcer occurs with anything like the frequency claimed by some authorities. The evidence set forth in this paper points to the conclusion that a patient with a chronic simple ulcer of the stomach is little, if at all, more liable to cancer than a healthy individual.

(2) I find that roughly 30 per cent. of cases of cancer of the stomach give rise to symptoms which simulate more or less closely those which we usually associate with simple ulcer, and I hold that it is this ulcer-simulating cancer which is responsible for the belief in the cancerous degeneration of simple ulcers.

I am greatly indebted to Dr. Dible for his expert histological opinion as to the nature of many of the ulcers dealt with in the work described.

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GLAUCOMA.[1]

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THIS condition of increased intra-ocular pressure, known as glaucoma, is a nightmare to some practitioners, whilst others miss it when the signs are plain. I have not space to discuss the condition at length or to be dogmatic; diagnosis between acute iritis and acute glaucoma is frequently very difficult, whilst the treatment of the two conditions is fundamentally different; but I would give the following advice: When seeing a patient with violent headache and neuralgia over the region of the distribution of the fifth nerve, vomiting, mental disturbance, irregular pulse and mists or light flashes (frequently coloured) in front of the eyes, refrain from diagnosing influenza or a bilious attack, for the sight will be rapidly lost and the eye disorganised. Again, in an elderly person complaining of a gradual loss of sight, do not diagnose cataract until you have looked at the pupil area for the fundus reflex with a reflected light; even then, if the area is largely filled with striæ or other opacities it should be remembered that glaucoma is often associated with cataract, or the lens opacities may be secondary to a chronic glaucoma from interference in its nutrition arising from increased pressure. In either case an oculist should examine the patient while the fundus can still be seen, in order to determine the necessary treatment.

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[1] Abstract from the presidential address delivered to the Devon and Exeter Medico-Chirurgical Society.

The signs of acute glaucoma frequently merge from those of the more chronic type into the eruptive stage. There are often complaints of the prodromal symptoms of transient mists in front of the eye for a moment, rainbow haloes round lights, neuralgic headaches and loss of near sight, especially in the hypermetrope; these are often the only symptoms in the chronic insidious type of the disease. The acute attack may be precipitated by any extra strain, such as a big meal, too much alcohol, mental or physical overwork, or some illness. The chief symptoms have been already given; the vision fails rapidly and in a few hours only hand-movements may be detected. The lids are puffy and the conjunctiva, both palpebral and ocular, is dusky red from venous congestion; the cornea is steamy and may be insensitive to touch or acutely tender; the anterior chamber is shallow and the iris muddy, with pupil moderately dilated, often oval with the long axis vertical, and not reacting. The deeper parts are not visible, but with the fingers the eyeball feels tense and tender on pressure. In acute iritis the onset is not so sudden; the pupil is small and may be irregular, the anterior chamber not so shallow and the cornea not so steamy.

There is intolerance to light in both conditions, as well as in an acute conjunctivitis, from which they must be distinguished. Thus a good light is essential, notwithstanding the patient's protests. If necessary a drop of 4 per cent. cocaine may be used, which will also help by dilating the pupil if the diagnosis lies between glaucoma and iritis. (In ordinary routine cases for obtaining a view of the fundus a drop of cocaine may be used to dilate the pupil instead of homatropine, which is so often used in elderly people with their small pupils. The effects can be neutralised by a drop of eserine before the patient leaves.) Some form of magnification is necessary and a corneal loupe is invaluable, giving a stereoscopic view, but an ordinary magnifying glass will do, giving an enlarged image of the anterior chamber and the iris. The observer will notice whether the pupil is large or small and irregular, with possible synechiæ and a dull listless iris. It should also be noted whether only the superficial vessels are injected, indicating conjunctivitis, or the deep vessels, or both—in which event the trouble is deep-seated. In the chronic type the pupil may have a crenated edge, but it reacts; a lateral light may show a dull pupil area, but again I would urge you never to diagnose a chronic case until you have thrown a reflected light into the eye. If you have not an ophthalmoscope with you an aural mirror will well take its place. Finally, if you find a hard eyeball and a tied-down pupil remember that a secondary glaucoma may develop after a chronic iritis.

Treatment.

Acute glaucoma having been diagnosed urgent steps are necessary. Instil eserine drops, 4 gr. to the ounce, half a dozen times in an hour, giving one drop in the other eye also. Moist or dry heat should be applied, leeches to the temple, and the patient prepared for an anæsthetic. If in a couple of hours there is not a distinct fall in tension and a contracted pupil, iridectomy must be done.

Some illustrative cases will serve to emphasise the condition.

CASE 1.—Female, aged 60, acute glaucoma treated as influenza; eight weeks ill with sudden vomiting, frontal headaches, and a feeling of cold clay round the eye. No pain in the eye at first; after a fortnight redness and watering and loss of sight. Recently coloured lights in the other eye. Early mental symptoms of wandering. Vision: right, 6/18; left, 2/60. Anterior chamber shallow, cornea steamy, immobile dilated pupil, tension plus two, no fundus view. Would not come into hospital; treated with eserine to both eyes. Two months later iridectomy was done for pain. Would not have the right trephined and ceased coming.

CASE 2.—Male aged 45. Subacute glaucoma missed. Seen Jan. 27th, 1919. Under a doctor since Dec. 30th, 1918, with influenza (?). On Jan. 3rd excruciating pains after seeing rainbows for months. Vision: hand movements either eye, tension plus two. Anterior chamber shallow. Treatment of no use.

The following are cases of chronic glaucoma.

CASE 3.—Male aged 63. Bad sight for years, completely gone from right eye, very little remaining in left. Never anything to call attention to his eyes beyond loss of sight; had had no treatment. Vision: right, hand movements; left, 6/60. Discs pale, cupped, and atrophied. The man's mentality was curious; his mother had bad sight at 60, one brother was blind in one eye and almost blind in the other at 42, and another of the family was quite blind at 40.

CASE 4.—Male aged 67. Insidious glaucoma without symptoms. Two years ago had good sight, gradually lost in right and about 12 months ago in left. No pains and no inflammation. I questioned him closely as to the usual symptoms and could get him to admit none, such as mists, rainbows, &c. He had been on drops for most of the time. Vision: right, perception of light only; left, 4/60. Pupils 3 mm. and sluggish, while the anterior chamber was not shallow. Cups filled three-quarters of the discs. Field on the Bjerrums showed a very enlarged blind spot almost reaching the fixation-point. I trephined the left eye and in a month the vision with a minus 0·75 was 6/36(1) and the field had enlarged to almost double. This case illustrates the fact that myotics are only palliatives and do not cure or stop the disease; the latter can only be done by relief of the choked drainage.

CASE 5.—Male aged 73. Slow absolute glaucoma. Bad sight six to seven years in the right eye and two in the left. Under a doctor for five to six years. Lot of pain in the right at times but none in the left. No rainbows, but flashes of light. Pupils 4 mm. and 3 mm., immobile, right iris greenish and tremulous, left blue. Vision: both perception of light. Both corneæ hazy; tension, right plus 3, left plus 2. No right fundus reflex, the pupil being filled with cataract; while a hazy view of the left disc showed huge cupping and atrophy.

The following are cases of secondary glaucoma.

CASE 6.—Female, aged 73, seen in August, 1919. Came up with running eyes, occipital and vertical headaches, and puffy lids with loss of sight. I found the condition of the lids was due to Donovan's solution which she was taking. Vision: right, 6/24(3); left, 6/12. Opacities in right lens and vitreous and guttate choroiditis in both. Some septic tooth stumps. May, 1920, developed cupping and put on pilocarpine drops. Stopped away for some time but in February, 1921, I trephined. She kept vision well in the left eye, but the cataract increased in the right.

CASE 7.—Female aged 62. Cataract secondary to or accompanying glaucoma. Seen July, 1920. Fourteen days before she thought the sight was alright, but then saw coloured lights and had pain at the back of the right eye. Vision: right and left, 6/12. Anterior chamber moderate, considerable opacities in both lenses, spicules, and haze; deep cups seen through the last-named. Tension with Maclean's tonometer was: right, 30; left, 45. Three months later I did a large iridectomy. There is still a steady increase of cataract, but she still sees 6/24 with either eye.

There is no disease harder to diagnose than chronic glaucoma, and only by weighing all the signs can a decision be made between it and early optic atrophy and retrobulbar neuritis. The field of vision in early glaucoma shows contraction of the nasal side, while in optic atrophy it is concentric. The tension should be taken if possible with a tonometer. In shallow glaucomatous cups the disc is pinkish, while in optic atrophy it is pale. There is, however, always some atrophy of the nerve with a cupped disc, and between this atrophy and simple atrophy with a slight depression there is much scope for error in diagnosis. I have seen a fairly advanced case of glaucoma without any visible change in the disc. Chronic glaucoma is almost as common a cause of loss of sight as cataract, and if you bear it in mind many cases can be treated while there is yet time. Acute glaucoma is comparatively rare.

TWO CASES OF *DIPYLIDIUM CANINUM* IN CHILDREN.

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Dipylidium caninum (*Tænia cucumerina*), a common intestinal parasite of the dog and cat, may also occur in man. The number of published cases is, nevertheless, so small that new cases are well worth recording. This worm was first found as a parasite in man by Dubois in 1751. Blanchard, in his work on the parasitology of the dipylidium, collected 60 cases from the literature up to 1907; of these cases 75 per cent. occurred in children of 3 years and under. They were distributed as follows: Austria, 3 cases; Denmark, 21; England, 2; France, 4; Germany, 16; Holland, 1; Norway, 1; Russia, 3; Sweden, 1; Switzerland, 7; U.S.A., 1. Since Blanchard's paper occasional new cases have been noted.

Dipylidium caninum, according to Blanchard's description, is 15–45 cm. or more in length. The head is small, with a club-shaped retractile rostellum armed with 3 to 4 rows of hooks. The genitalia are double, with a genital pore on each side of the segment. The uterus is in the form of a reticulum, in the meshes of which the testicular vesicles lie. Later on it breaks up into a large number of independent capsules, each of which encloses several (generally 8 to 15) round eggs. The mature segments and the ripe segments show a marked bulging of their lateral borders, giving them the appearance of cucumber seeds.

The cysticercoid larval form (*Cryptocystis trichodectis*) occurs in certain insects, especially in the louse and flea of the cat and dog.

The details of the two cases we have to record are as follows:—

CASE 1.—Some fragments of tapeworm passed by a child were examined by one of us (G. R. T.) in the pathological department of the University of St. Andrews. The specimen consists of three short ribbons, measuring 12, 10, and 4 cm. in length respectively, as well as several isolated segments. The shortest ribbon is made up of very small segments, apparently from the neighbourhood of the neck. The head, unfortunately, is wanting. In the case of the 10 cm. ribbon the segments are larger and definitely elliptical in shape. The posterior segments of this ribbon, all the segments of the largest ribbon, and the isolated segments, show a marked bulging of their lateral borders which at once recalls the appearance of cucumber seeds. The curious appearance of a chain of seeds which these segments present at once attracts the attention. An examination of segments from the posterior end of the longest ribbon shows the presence of double genitalia, the two genital pores being placed symmetrically on the lateral margins. One of the isolated segments is found to be ripe and contains a large number of capsules, each of which encloses several rounded eggs. Within the eggs one can make out the six hooks of the hexacanth embryo. The characters noted are those of *Dipylidium caninum*, and, even without the examination of the head, there is no doubt that we are dealing with that tapeworm. Prof. J. F. Gemmill, who has been good enough to examine the specimen, confirms the diagnosis.

We are indebted to Dr. J. Sellar, Markinch, Fife, in whose practice the case occurred, for the following clinical notes:—

The patient was a baby, bottle-fed from birth. Links of a tape worm were first observed in the stools during the fifth week of life. Previous to this the child had been restless, fretting, and not sleeping. There seemed to be slight abdominal distension, but motions, pulse, and temperature were all normal. There was no vomiting. Saline enemata, given every other day, were followed (but not at once) by the passing of larger portions of the worm, such as the specimen sent to the laboratory. This continued for about a fortnight, after which no further trace of the worm was seen. The child quickly recovered as soon as the worm was expelled. In the house there was a small Pomeranian dog, which was made much of by the elder child of the family. The mother has since kept the dog away from the children and there has been no further trouble.

CASE 2.—A mother of six children brought her youngest child, a female infant aged 5½ months, to one of us (J. F.) complaining that it was passing tapeworms in its stools. She stated that the child often looked white, that its eyes were often swollen, that the tip of its nose was sometimes red, and that it slept as much as a child of that age should do, but often wriggled when asleep. It was breast-fed for two months, then bottle-fed, cow's milk being used. There were no past illnesses. The stools at times were green and loose, at other times constipated. The child appeared small for its age, but there was no pallor and its eyelids were not puffy when examined. The mother was advised to keep any further segments for examination. Two weeks later several segments were obtained, and were preserved in normal saline solution. The mother mentioned that freshly expelled single segments moved for a short time. This statement was verified. The movement was of a slow curling nature, the segment bending along its transverse axis while its extremities, moving away from the plane in which they were originally lying, tended to approach one another. The shape of the small chains at once excluded *Tænia solium* and *T. mediocanellata.* A single segment transfixed with a pin and held obliquely to the incandescent light showed two opposed pores at the lateral margins near their middle. On questioning the mother it was found that a cat was kept in the house, and that at the age of 2 months the child had been for a period of 21 hours in a friend's house in which there was a dog.

Prof. W. J. Tulloch, of St. Andrews University, to whom we are indebted for detailed examinations of the specimens from this case, states that the segments are those of *Dipylidium caninum.* At a post-mortem examination on the cat he found no intestinal tapeworms. Seven fleas found on the cat's body were examined for cysticercoids, but as only negative results were obtained, the presumption remained that these particular fleas were not infected with the parasite. Unfortunately it was not possible to obtain the dog.

With regard to treatment, in this instance the child's feeds were more carefully regulated. The action of the bowels was modified to some extent by the use of hydrarg. cum creta and ol. ricini. At the same time the vitamin content of the food was increased in an attempt to get the child into better condition before using an anthelmintic. A dose of castor oil was ordered every ten days. This generally resulted in the expulsion of several segments. Although nothing else was done, segments ceased to appear after the age of 7½ months. The head was not obtained. Weight records were not kept regularly, but the child even now, at the age of 11 months, is considerably under normal, her weight being only 18 lb. The mother has noticed steady improvement since the disappearance of segments from the stools. The child is bright and lively when awake, and the stools are now rarely abnormal in character.

Two questions arise in view of the close contact that too frequently exists between children, dogs, and cats in many of the houses in the poorer quarters of our cities. One wonders if Blanchard's figure can be taken as a true index of the case incidence of the infection in human beings, and how far the presence of these parasites may be responsible for the chronic ill-health and poor physique of some of our slum children. Detailed examination of every tapeworm passed by a child would appear to be necessary to settle this question.

The cysticercoid form of dipylidium occurs in the louse and flea of the cat and of the dog. The cat and the dog become infected by swallowing their own lice and fleas while licking their coats. Presumably human beings are similarly infected by accidentally swallowing infected lice or fleas. In view of the proportionally large number of cases in the early years of life prophylaxis demands the exclusion of dogs, cats, fleas, and lice from the living quarters of the house.

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THE USE OF INSULIN IN GENERAL PRACTICE.*

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THE value of insulin is now definitely established, for sufficient clinical experience has been obtained to make it certain that nearly all patients suffering from diabetes will benefit from its use. Personally, I have seen nearly a hundred diabetic patients who have been treated with insulin, and in every case, without exception, the result was beneficial; frequently, indeed, it was even dramatic. It is most important that insulin should be used only in the proper type of case, for there are many pathological conditions unsuitable for insulin though glycosuria may be present. If, for instance, a glycosuric patient is really suffering from arterio-sclerotic changes, the clearing up of the glycosuria may not materially relieve the condition. Some time ago I saw a patient who was losing flesh very rapidly and getting steadily weaker day by day. A moderate amount of glycosuria was present, and the medical attendant took the view that the case was one of diabetes. Accordingly, small doses of insulin were given with the result that the sugar disappeared fairly rapidly from the urine, but the patient felt no better. Further examination revealed that the glycosuria was but an unimportant and secondary phenomenon, and that the real cause of the trouble was carcinoma of the stomach. Such cases will undoubtedly occur from time to time, but the failure of insulin under these conditions is only what is to be expected. In my own experience, every subject who was suffering from genuine diabetes derived very great benefit from the use of insulin. Probably, it is safe to prophesy that the more we know about insulin and its therapeutic use, and the more careful we are in choosing suitable cases, the better will be our results.

We have now in our hands a satisfactory remedy for the treatment of diabetes, and the question to be discussed is the important one whether insulin may be safely used by the average general practitioner. To this question different people may give different answers. Insulin, like fire, is a good servant but a bad master, and whatever view is taken, the answer must be based on a fairly wide experience of the use of the remedy in various types of patients. My answer, based on my own experience, is that insulin may *be quite safely used by the general practitioner, and I have no hesitation whatever in saying that it is indeed the duty of the general practitioner to use this remedy.* True, stringent precautions must be taken, and some possible contingencies guarded against, but when certain directions are carefully followed, the clinical use of insulin should give no greater cause for anxiety than the use of any other powerful remedy. The most important point in the employment of insulin is to go ahead very gradually. Whatever methods may be adopted in hospitals and special institutions where the patients are always more or less under skilled control, it is courting disaster to use short cuts in general practice. It must be remembered that insulin, when given carelessly, may actually result in the death of the patient. That insulin when given in excessive amounts will produce a certain train of symptoms is well known, but, fortunately, these symptoms are usually not very severe. It is this action of insulin that has to be guarded against in the routine treatment of diabetic patients. If the suggestions to be brought forward later in this paper are carried out, these symptoms will seldom be in evidence, and ought never to be dangerous. On the other hand, every medical man employing insulin should be thoroughly impressed with the fact that he is using a powerful and dangerous, though easily controlled remedy, and that any neglect on his part may end in disaster. Before giving exact details for the clinical use of insulin it will be necessary to consider shortly the nature of the symptoms which may follow the use of this substance.

Symptoms Produced by Insulin.

The symptoms produced by an overdose of insulin may vary considerably in different patients and even in the same patient at different times, but they generally consist of flushing of the face with sweating, often followed by some degree of pallor. The sweating may be very marked. There is often a sense of constriction about the throat and chest. The patient feels giddy and a marked sense of physical weakness may be present. The limbs are frequently cold, and sometimes the first feature observable is a blanching of the face. In other cases, the initial symptom is a feeling of nervousness or distinct tremulousness, so that the patient cannot coördinate his movements. When he tries to write he sprawls on the paper. In mild cases, the symptoms may be entirely subjective, consisting of nervousness, a feeling of impending disaster or apprehension which the patient cannot explain, or a sense of weakness coming on suddenly.

In children the pulse-rate is frequently accelerated. If the condition is not relieved, the nervous symptoms may become very extreme with intense anxiety and very pronounced emotional disturbances. In very severe cases, sensory and motor aphasia, delirium, and confusion may be present, with collapse and syncope, which may result in a state of unconsciousness. Convulsions, so frequent in the insulin symptoms of rabbits, do not appear to be common in man. Marked increase of muscle tonus with a temporary cataleptic state may be seen occasionally during the return of the patient to consciousness.

The occurrence of these clinical phenomena is associated with the action of insulin in lowering the blood-sugar concentration. When the blood-sugar gets too low, the fact is indicated by the appearance of these symptoms, but it is now certain that patients differ greatly as to the exact blood-sugar percentage that may be present when the symptoms come on. Taking the normal resting blood-sugar as about 0·1 per cent., it would seem that, in certain subjects, even a slight decrease to the region of 0·08 per cent. or so may be associated with insulin symptoms, while in others, a blood-sugar as low as 0·05 per cent. may be present and yet the patient may feel quite well. In a general way, however, it is now established that the train of symptoms induced by insulin do not appear when the blood-sugar is normal or above this, and that they are liable to manifest themselves when the blood-sugar sinks to a subnormal level; the exact level at which they appear depends on some unknown factors present in the patient. The association of these insulin phenomena with a more or less lowered blood-sugar—a hypoglycæmia—is so pronounced that the condition is generally referred to as a hypoglycæmic reaction. It may be taken for granted that when insulin symptoms are in evidence, the lower the blood-sugar the more severe are the symptoms.

Treatment of Insulin Hypoglycæmia.

The symptoms described generally come on from two to four hours after insulin has been given, but, not infrequently, they are observed after four to six hours, and very occasionally up to 10 or 12 hours after injection. If too much time elapses between the giving of insulin and the taking of food, symptoms may be present in less than an hour. Though the symptoms of the hypoglycæmic complex may be very severe, it is fortunate that they respond very easily to treatment. Sugar given by the mouth will very quickly remove the condition, so that there is little or no danger if the patient is carefully warned to take some sugar whenever any symptoms such as those mentioned follow the injection. Any kind of sugar will do, but glucose is perhaps best. Since it is advisable to get sugar into the system as quickly as possible, it is a good plan to keep a glucose solution (say, 50 per cent. strength) ready to hand and to warn the patient that he must always take from 1 to 2 oz. of this when symptoms are present. This amount may be followed by another ounce if the condition does not show definite signs of clearing up in from 15 to 20 minutes. From the practical point of view, it is very convenient to use barley-sugar. The patient eats a stick or two of this whenever any indication of hypoglycæmia occurs. Patients treated with insulin should always have some such carbohydrate as barley-sugar at hand, so that some may be taken whenever they feel the approach of symptoms. Though the patient may not perceive the onset of the first attack, he soons begins to be conscious of the very earliest symptoms in subsequent attacks; by taking sugar he can often prevent their further development. When insulin is given carefully, no serious hypoglycæmic symptoms should ever ensue, but, obviously, if two large doses are injected and the patient becomes unconscious, more drastic treatment is essential. One of the best means to counteract the condition in the unconscious patient is the injection of 1 c.cm. of a 1 in 1000 solution of adrenalin. If consciousness is regained as the result of this injection, sugar ought to be given by mouth. In many cases it may be necessary to inject glucose intravenously after the epinephrin. Up to 200 c.cm. or more of a 20 to 30 per cent. solution may be used. Subcutaneous injection of glucose into the loose tissue of the abdominal wall may be helpful if the facilities for intravenous injection are not immediately available. Glucose may also be passed into the stomach by a tube, but this is frequently not a very easy procedure in an unconscious individual. In any case, the fundamental point is to get glucose into the blood-stream as quickly as possible. A dose of pituitrin (1 c.cm.) given subcutaneously also produces excellent effects. Where collapse is present, it may be necessary to give stimulants such as strychnine and camphor hypodermically and hot coffee per rectum. A hot drink after the recovery of consciousness seems to help the patient.

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* Introductory address on the Use of Insulin in General Practice, delivered before the Royal Society of Medicine, Section of Therapeutics and Pharmacology, on Tuesday, Oct. 9th.

Though severe cases of hypoglycæmia with loss of consciousness were fairly numerous some time ago, when our knowledge of the action of insulin was very limited, they should never be encountered when the insulin treatment is carried out on the lines to be described below.

Effect of Insulin on the Diabetic Condition.

Insulin acts in tending to restore the diabetic patient to the condition of the normal individual. Apparently, in diabetes, some substance essential for carbohydrate metabolism is missing or present in insufficient amount, and the injection of insulin supplies this missing secretion. Consequently, the therapeutic use of insulin results in a disappearance or lowering of the urinary sugar and ketone bodies. The excessive blood-sugar is also reduced towards the region of the normal level. In subjects whose diets are carefully correlated with the insulin dosage, the blood-sugar may be kept within normal limits, and the urine free from sugar and ketone bodies. Very careful adjustment of diet to insulin dosage is, however, required to produce this effect, and frequent modification, both in diet and insulin, may sometimes be necessary. It may be accepted as a general rule that insulin will produce no deleterious effects as long as glycosuria is present, so that it is easy and safe to regulate the dosage by examination of the urine for sugar. In the use of insulin, blood-sugar estimations are of great value, but experience shows that they are not absolutely essential in the great majority of cases. When the glycosuria disappears, examination of the urine for sugar does not help us any more, and it is at this stage that blood-sugar estimations are of most value, for without the means of ascertaining the blood-sugar content, we are working in the dark. In some patients, also, sugar may disappear from the urine when the blood-sugar is still very high (even as high as 0·3 per cent. or more), and in such cases it is essential to know the condition of the blood. Generally, however, the disappearance of glycosuria indicates that the blood-sugar is below 0·18 per cent. or so; if the urine continues to be persistently sugar-free, experience shows that the blood-sugar is generally much lower than this, and frequently is found to be more or less normal. It seems to be much easier to reduce a high blood-sugar to the normal level than it is to reduce an already normal blood-sugar to a state of hypoglycæmia.

The Type of Case in which Insulin is Indicated.

One of the most important points for the general practitioner is to make certain that he does not attempt to treat an unsuitable case. On the whole, there is little danger in the use of insulin when the case is a suitable one, and there can be no doubt that the greatest danger lies in the possibility that a practically normal patient may be treated with this substance. As a rule, there is little difficulty in arriving at a conclusion as to the advisability or otherwise of using insulin in any given patient. Too frequently the terrible ravages of the diabetic condition are obvious, and in spite of long and careful dietetic treatment, the subject is reduced to an emaciated helpless condition. He passes large amounts of urine containing sugar, acetone, and diacetic acid. He complains of great physical weakness, and presents a pitiable picture. In such cases, it is too obvious that the end cannot be far off unless insulin is used, and no possible doubt as to its necessity can arise. Other patients, however, may give rise to greater difficulties in deciding whether insulin should be used. A very common type of diabetic is the elderly individual who frequently complains of being generally out of sorts with weakness of the legs and a feeling of being below par, but who has few symptoms characteristic of ordinary diabetes. Examination of the urine may show a large amount of sugar, but no ketone bodies or at least only traces of them. There is no emaciation, and the patient may appear to be in quite good condition. Should we use insulin in a case of this kind? The answer is not always easy to give, but the condition, though apparently of no great importance as far as objective symptoms are concerned, should never be neglected. First of all, a careful dietetic régime should be ordered, but if this is not successful in removing the glycosuria and materially reducing the blood-sugar, insulin ought to be employed. In many of these patients there is not much danger of coma, and some of them live to quite an advanced old age, but this condition is so frequently associated at a later period with definite symptoms that it should never be disregarded.

The chief symptoms observed are: (1) eye changes, frequently ending in blindness; (2) neuritis; (3) intense local, and sometimes general, irritation; (4) muscular weakness and nervous instability; (5) trophic changes, such as gangrene of the extremities. Of these the most tragic is blindness. I have seen a large number of patients of this type who had been suffering from marked glycosuria and hyperglycæmia for many years and in whom the eyesight is now practically gone. Much can be done to prevent this tragedy at an early stage of the disease, but once definite symptoms set in they are very difficult indeed to treat.

Neuritis also may be very troublesome, and sometimes local irritation is so extreme that the patient's life is rendered miserable. General weakness and severe local cramp-like pains may also add greatly to the patient's discomfort. Though this type of persistent glycosuria may give rise to little or no trouble, it is impossible to foresee what is likely to happen in any particular individual, and the condition should be controlled if possible. In general, it is most important to make certain that the case is really one of diabetes, or very marked glycosuria with a high blood-sugar content, before giving insulin. If the patient's urine does not give an acetone reaction great care must be exercised, and the possibility of the case being one of renal glycosuria must never be overlooked. In this condition it may be very dangerous indeed to treat a patient with insulin, since the blood-sugar may be already somewhat low. Renal glycosuria can be easily excluded by a sugar-tolerance test carried out in the usual way, but it is more simple to give the patient a dose of 50 g. or so of glucose dissolved in a little water, and to get him to empty his bladder from two and a half to three hours after the ingestion of the glucose. This sample of urine will contain glucose, but a specimen passed after this time should not show glycosuria. Instead of taking glucose, an ordinary meal fairly rich in starchy material may be eaten, and the urine tested, after an interval, in the same way as with glucose. If sugar is not being passed in the urine two and a half to three hours after a glucose or starch meal, the individual is not a suitable patient for insulin, and the condition is probably one of renal glycosuria. As a rule, a patient requiring insulin passes large amounts of acetone and diacetic acid in the urine, but this is not always the case. In this connexion it may be noted that ketone bodies may be present in the urine of any patient, no matter what disease he suffers from, if his diet has been recently changed to one containing much protein and fat with very little carbohydrate. If any real difficulty arises as to the suitability of the patient a blood-sugar estimation will frequently help to settle the matter, for the exact state of matters will then be more or less obvious. Always inquire carefully into the history of the patient, and ascertain whether he has lost weight recently. If he has not been dieted before, and is found to be suffering from diabetes, try the effect of diet before giving insulin. Frequently diet will control the condition and insulin may not be necessary. In young people, however, in whom the disease is often more or less acute and well established, it is perhaps advisable to give insulin in all cases, for this gives the best chance for recovery of the diseased pancreatic cells. Occasionally one sees a patient in whom the diabetic condition appears to be very severe but whose response to diet is extraordinarily good. Here insulin is not indicated. If the above directions are observed, there should be no great difficulty in so arranging that only suitable patients should receive insulin.

Blood-sugar in Insulin Treatment.

It is now generally accepted that insulin does not cure diabetes. While insulin is being administered the symptoms disappear, and the patient regains health and strength, but on stopping the insulin the symptoms return. In the ordinary dietetic treatment of diabetes on the principles suggested by Allen the chief points aimed at were to keep the urine free from sugar and to maintain the blood-sugar as near the normal level as possible. The importance of keeping down the blood-sugar lay in the fact that the damaged pancreatic cells had a better chance to recover when there was not an excessive amount of sugar in the blood. Unfortunately, we had little clinical evidence in the past that the diseased pancreatic cells in severe diabetes ever recovered to any appreciable extent, however carefully dietetic rules were observed. To everyone who has had much experience of diabetes it is but too obvious that the more severe types are essentially progressive in nature, and the modern dietetic treatment, so largely used before the advent of insulin, never succeeded in doing more than postponing the fatal issue in such cases. No doubt, the best chance for the damaged pancreatic tissue to recover its efficiency is afforded when the blood-sugar is kept as nearly normal as possible, and in all methods of treatment this is the ideal to be aimed at. In the past, however, we must confess that the results obtained with diet do not give us great reason for hope that insulin will ever cure diabetes. True, in some instances, when diet was the sole means at our disposal, it was impossible to keep the patient's blood-sugar normal, so that there was no real chance given for recovery, but many diabetic patients, on the other hand, went on for a comparatively long time with normal blood-sugars while taking a diet that was amply sufficient for all their requirements. In spite of this, the symptoms reappeared sooner or later, glycosuria returned, the blood-sugar became impossible to control, and death supervened.

Details of Treatment with Insulin.

Having ascertained that the particular patient to be treated is a suitable case for insulin, the next point is to arrange a diet and to give the patient the necessary amount of insulin to keep his urine sugar-free and, if possible, to keep his blood-sugar within normal limits. Frequently this is easy; at other times it is difficult, and sometimes it is practically impossible. In very severe cases of diabetes it is occasionally found that the amount of insulin necessary to keep the patient sugar-free, when even a minimum diet is prescribed, is very large and quite beyond the financial means of the patient. In such cases the patient, even when passing considerable amounts of sugar, does quite well as a rule as long as insulin is being administered. Here the practical aspect of the question has to be separated from purely theoretical considerations, and, in my opinion, it is better to give the patient a moderately good diet with the maximum amount of insulin, even when such diet produces glycosuria, rather than keep him on a starvation diet on which the glycosuria may be much less or even occasionally absent. In very bad cases of this nature experience over long periods goes to show that increased tolerance for carbohydrate is not likely to result, and it is therefore best to let the patient go on in comparative comfort, rather than subject him indefinitely to conditions of severity amounting almost to torment, without any reasonable chance of deriving benefit from them.

Diets are sometimes given consisting of large amounts of one or two substances, such as fat and vegetables for instance, so that, as far as food is concerned, the last state of the unhappy patient is worse than the first. For short periods such diets may be satisfactory and help materially in eliminating glycosuria, though marked ketosis may be present, but, on the whole, they are quite unnecessary and possess the drawback that patients will not carry on with them for any length of time. Now, in order that the best effects should be obtained, it is essential that the diet and dose of insulin should be carefully correlated, and the best means of bringing this happy combination about is the problem that confronts us in every case we treat. Several different methods have been suggested, but, in my experience, the simplest and most satisfactory in the end is for the medical man to put his patient on to a fixed diet which he calculates will be sufficient for his wants, and then to give increasing doses of insulin until satisfactory results are obtained. This daily dietetic allowance should contain from 10 to 15 calories for every pound the patient weighs. The exact quantity given will naturally depend on various circumstances such as the amount of work the patient is performing and other factors. The protein allowance should be in the neighbourhood of half a gramme or less per pound weight of the patient, while the carbohydrate should be small and the fat content comparatively high. Roughly speaking, the carbohydrate content should not exceed about one-third of the weight of the fat given. Thus, in a patient weighing from 120 to 130 lb., a suitable diet would consist of about 65 to 70 g. of protein with 40 to 50 g. of carbohydrate and 140 to 150 g. of fat, giving a total calorific value of about 1700 to 1800. Sometimes, of course, it will be found that considerable modification of such a diet may be necessary, but it is quite impossible to say how the patient will respond until treatment with insulin is actually carried out.

For making up a diet the following tables may be used. It is advisable in each case to include some green vegetables in the daily menu, though large amounts of these are frequently quite unnecessary. The following vegetables, referred to later as "Group A," may be used either singly or in any combination. Of these, each ounce contains 1 g. carbohydrate.

GROUP A.—VEGETABLES.

(1 oz. = 1 g. carbohydrate.)

Cabbage.
Spinach.
Rhubarb.
Seakale.
Grape fruit.
Cauliflower.
Cucumber.
Celery.
Radishes.
Endive.
Brussels sprouts.
Asparagus.
Mushrooms.
Watercress.
French beans.
Lettuce.
Marrow.
Tomatoes.
Leeks.

The following table shows the approximate content in grammes of protein, fat, and carbohydrate in 1 oz. of foods. It contains practically all the foodstuffs necessary for the treatment of diabetic cases.

Table of Food Values.

—	Carbohydrate.	Protein.	Fat.	Calories.
Almonds	4	5	14	168
Bread (brown)	13	1·2	0	65
,, (white)	15	2	0	75
Brazil nuts	2	5	19	204
Butter	0	0	23	212
Broth	0	1	0	5
Bacon	0	3	18	180
Cream (thin)	1	1	6	65
,, (thick)	1	1	20	190
Chicken	0	6	1	34
Cheese	0	8	10	130
One egg	0	6	6	80
Fish (white)	0	5	0	20
Meat (lean)	0	6	3	51
Milk	1·5	1	1	19
Margarine	0	0	23	212
Oatmeal	18	4	2	112
Potatoes	6	0·5	0	30
Shredded wheat	21	3	0	103
Three oysters	2	3	0	25

The following is an example of a diet which I frequently use :—

Diet for Patient Weighing about 140 lb.

	Carbohydrate.	Fat.	Protein.	Calories.
Breakfast, 9.30 A.M.				
2 oz. bacon 1 egg 1 oz. white bread ½ oz. butter ½ oz. cream 4 oz. vegetables (Group A)	20	63	15	733
Lunch, 1 P.M.				
Beef tea 4 oz. white fish ½ oz. Callard's starch-free bread ½ oz. butter ½ oz. cheese 1 oz. cream 2 oz. vegetables	3	22	35	350
Tea, 4 P.M.				
Tea ½ oz. thin cream 1 Kalari or bran biscuit (Callard) ½ oz. butter	—	15	7	160
Dinner, 6.30 P.M.				
Clear soup 4 oz. meat 1 oz. bread ½ oz. cream ½ oz. cheese ½ oz. butter 4 oz. vegetables Coffee	25	40	30	590
	48	140	87	1833

Having put the patient on a definite diet, it is best to keep him in bed for a few days at the beginning of treatment, or at any rate, he should remain indoors. His urine is collected and examined each day for sugar and ketone bodies, a quantitative estimation of the sugar being carried out if possible. He is warned to be on the lookout for any indications of hypoglycæmia, and told to take some barley-sugar if symptoms should come on. A supply of barley-sugar should always be kept in his immediate vicinity so that it may be available at any moment. Injections of insulin are then begun, and with the patient taking the same diet day after day, the amount of insulin is slowly increased until the urine becomes free from sugar, or until the dose given is a comparatively large one. On the whole, it is safer not to give more than 50 units of insulin per day as a maximum, and, if possible, a smaller dose should be employed. The principle of the treatment is to begin with small doses, and to increase the amount gradually until the glycosuria disappears, or until a dose is reached beyond which the medical attendant does not wish to go. This ensures that if symptoms do supervene, they are never severe, for under these conditions it is obviously impossible to give a dose at any one time that is much in excess of the patient's requirements. The insulin is given twice a day by injection, about 30 minutes before the morning and evening meals. Sometimes more frequent injections are done, but, generally speaking, this is inconvenient for all concerned. In bad cases it is generally quite safe to start with 10 units twice a day, but to be on the safe side, 5 units had better be used to begin with unless it is quite certain that the patient is really suffering from a severe condition. As long as glycosuria persists, gradually increasing doses as indicated below may be given.

Insulin Dose in Units.

Day.	Morning.	Evening.
1st	5	5
2nd	5	5
3rd	10	5
4th	10	5
5th	10	10
6th	10	10
7th	10	10
8th	15	10
9th	15	10
10th	15	15
11th	15	15
12th	15	15
13th	20	15
14th	20	20
15th	20	20
16th	25	20
17th	25	20
18th	25	25
19th	30	25
20th	30	30

If, after 30 units are given twice daily for a few days, glycosuria still persists, it is best to continue for a little time with this dose, and to cut down gradually the carbohydrate of the diet. In some severe cases it may be necessary to eliminate carbohydrate altogether, but in others a partial reduction will frequently result in stopping the glycosuria, and when this happens the dose of insulin may be very gradually reduced, or a little more carbohydrate may be cautiously added to the diet. By one means or another it will generally be found possible to keep a patient free from glycosuria and marked ketosis, and yet prevent the onset of symptoms. If, however, hypoglycæmic symptoms should supervene they are always mild, since it is impossible if this method is followed to give anything beyond a very slight excess of insulin in the case of any particular patient. Indeed, the onset of slight hypoglycæmic phenomena is often helpful in treatment, as an indication that the insulin dose should be very slightly reduced or the carbohydrate of the diet slightly increased. The majority of my patients remain in good health and without glycosuria on a dose of from 10 to 25 units of insulin twice a day; for various reasons it is preferable not to increase this dose too much, though sometimes it may be necessary to do so. Frequently, however, the urine becomes sugar-free long before a large dose is reached. When this happens it is best to continue with the dose of insulin that was being used when the glycosuria disappeared or to reduce this dose to a very slight extent. If sugar now appears in the urine it is obvious that the amount of insulin given is just on the low side, and a slight increase should be made. It is all a matter of common sense in adjusting diet and insulin, and obviously, when there is any tendency to hypoglycæmic symptoms, they can be removed either by reducing the amount of insulin or by increasing the carbohydrate of the diet. The one important point is not to hurry too much at the beginning of treatment, but to give progressively increasing doses of insulin spread over a fairly long period. When this is done, and the above general directions are followed, there is no danger in the use of the remedy. In certain circumstances blood-sugar estimations are useful, but it is quite possible to treat a case quite successfully without a single blood-sugar estimation. When, during treatment, the total sugar in the urine begins to decrease very appreciably, and only a small amount is present, it is best to get the patient to pass urine before each injection and to examine this specimen for sugar before giving the insulin. If at any time such a specimen of urine is found to be sugar-free, it is advisable to feel one's way carefully, so to speak, and to give a slightly smaller dose of insulin for a few times afterwards. If no symptoms appear the dose may be cautiously increased over and above the amount just necessary to keep the urine sugar-free. This will ensure that the blood-sugar is reduced nearer to the normal level. Various modifications of the above scheme may be used, but the principle on which it is based should be followed, as this gives the best protection against untoward results.

Insulin in Diabetic Coma.

In coma large doses of insulin may be given. Treatment should be begun with an injection of 20 to 25 units followed by a similar amount in two hours or less if no definite improvement takes place. In this condition blood-sugar estimations are of great value in indicating the effect of the insulin. Sugar ought not to be given along with insulin, for though this does no harm in certain cases, I have seen one patient in whom it seemed to neutralise the action of insulin. Generally, in cases of diabetic coma, insulin acts in a dramatic manner, but we cannot always be certain of success even when insulin is employed. On the whole, there does not appear to be any reason why insulin should not be successfully used in general practice.

Clinical and Laboratory Notes.

TRAUMATIC RUPTURE OF A HYDRONEPHROSIS.

BY JAS. B. MACALPINE, F.R.C.S. ENG.,
HONORARY SURGEON AND SURGEON IN CHARGE OF GENITO-URINARY DEPARTMENT, SALFORD ROYAL HOSPITAL, ETC.

IN THE LANCET of August 4th, 1923, Mr. H. W. L. Molesworth records a case of traumatic rupture of a hydronephrosis, which had occurred in his practice; he also supplied notes of 11 previously reported cases, which, with two exceptions emanating from America, were all reported in continental journals; he says that he knows of no English case or specimen which illustrates this rare accident. In view of this statement, the following report may be of interest:—

J. H., male aged 7, was admitted to my service at the Salford Royal Hospital on July 27th, 1920. The previous evening he had been jumping over a gate, when he fell and injured his left side just below the costal margin. During the night he vomited several times, and again on the day of admission to the hospital. The pain in his side had prevented sleep during the night. A doctor saw him on the 27th, about 2 P.M., and sent him into hospital. On admission the pulse was 140, temperature 99° F. The complexion was rosy and tongue clean and moist; the bowels had not acted for a period of two days; the abdomen was slightly distended and some rigidity of the muscles of the left side of the abdominal wall was observed. This was not marked and could be overcome if his attention was distracted; there was tenderness in the same region. On percussion dullness was found in the left flank, which persisted when his position was changed. The urine contained no trace of blood. My colleague, Mr. G. Jefferson, F.R.C.S., kindly undertook the operation in my absence.

Operation.—Laparotomy, through the left rectus incision; the stomach, intestines, and spleen were all found to be normal; there was no blood in the peritoneal cavity. On the left side the descending colon was set up on a ridge, and there was some free fluid (? urine) present in this region. The wound was closed. The patient was turned over on his side, and approach obtained to the left kidney through an oblique lumbar incision. On cutting through the perinephritic fascia urine escaped to the extent of about half a pint; all the tissues in the neighbourhood of the kidney were saturated with this fluid. When the kidney was lifted into the wound, it was seen that a condition of hydronephrosis existed, and that there was a tear on the posterior aspect of the pelvis about two and a half inches in length. Investigation of the cause of the hydronephrosis was difficult owing to the presence of the urinary œdema in the perinephric tissues. The kidney was removed and a drainage-tube inserted.

On the 28th he was much better, though the pulse was still 136 and there was some difficulty in respiration. During the next few days the patient suffered from consolidation of both bases. He was examined at my request by Dr. G. J. Langley, in whose opinion the pneumonia was a post-anæsthetic condition rather than one due to irritation spreading through the diaphragm. (It was found that he had suffered from pneumonia in 1916, and that he had always had a cough since then.) On inquiry as to his previous urinary history, we learned that the patient has suffered from a severe degree of nocturnal enuresis, the bed being wet each night during his sleep. He had also been sent home from school frequently, because his clothes had been wet. No other history of urinary trouble was obtainable. He had never complained of any pain in his loin. He made a complete recovery and left the hospital in three weeks.

I have recently attempted to communicate with his parents to find out if the enuresis had been affected by the removal of the kidney, but have been unable to trace the patient.

A CONGENITAL TUMOUR OF THE TIBIA.

BY D. DENHAM PINNOCK, F.R.C.S. ENG.,
ASSISTANT SURGEON, VICTORIA HOSPITAL FOR CHILDREN AND LONDON TEMPERANCE HOSPITAL.

THE following case appears to be a very rare type of congenital tumour in a bone.

A female child, 2 weeks old, was brought to the out-patient department of the Victoria Hospital, the mother having noticed a swelling on the lower part of the left leg, which she said had been present since birth.

Condition on Examination.—A smooth swelling was detected in the lower part of the left tibia, one and a half inches above the ankle, continuous with the bone. There was no redness or œdema, and the skin moved freely over the swelling. No history of trauma was obtained; the confinement had been normal, and there were no other tumours about the child, who appeared quite healthy. The Wassermann reaction was negative. X ray examination showed an intramedullary tumour in the lower fourth of the bone, causing some expansion of the bone with thinning of the shaft, and there appeared to be a certain amount of cystic change, the picture being that of a myeloma.

Operation.—On exposure of the tumour it was noted that there was none of the usual maroon colour of a myeloma to be seen. The periosteum was intact over it, but the bone was so very thinned that it could be cut with a knife, and this showed a solid tumour filling and expanding the shaft of the tibia. It was firm, white, fibrous, and striated on section, and had the appearance of a fibro-sarcoma. As the diagnosis was not certain, it was decided to remove the growth by performing a partial diaphysectomy, which was done; the specimen was sent for pathological investigation, and the report stated that the growth was a pure fibroma, showing no evidence of malignancy.

The X ray was misleading, as the tumour definitely appeared to be cystic, whereas it was a solid mass. The child is now over a year old and has developed well. Bone has been thrown out under the periosteum, but there is a gap not yet filled just about the site of the tumour, which it is hoped will be repaired completely by a bone graft. The innocent nature of the tumour seems established beyond doubt, as there are no signs of any recurrence either locally or in the form of secondary deposits.

Reviews and Notices of Books.

History of the Great War.

Medical Services: Pathology. Edited by Maj.-Gen. Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Maj.-Gen. Sir W. B. Leishman, K.C.M.G., and Col. S. L. Cummins, C.B., C.M.G., LL.D. London: H.M. Stationery Office. 1923. Pp. 600. 21*s.*

This volume embodies in some 22 chapters the sum of medical scientific research called for and stimulated by the war. At the beginning of hostilities there was little coöperation between the pathologist, the bacteriologist, and the surgeon, and so overwhelmed were the existing methods of wound treatment by the circumstances of modern warfare that, to quote Sir Alfred Keogh, "we went straight back into all the septic infections of the Middle Ages." How the pathological service was organised to meet the new conditions is set forth in the opening chapter by Sir William Leishman. About one-third of the volume deals with surgical pathology: anaerobic and non-anaerobic infections, in particular gas gangrene and tetanus. Although on a large scale these are almost exclusively war conditions, and, we trust, past history now, the knowledge acquired from 1914 onwards forms an important chapter in medical annals. Gas gangrene and tetanus are considered fully in all their aspects. A chapter on latent sepsis by Sir Kenneth Goadby discusses the pathology of wounds which after they had healed were liable to break out whether the scars were disturbed or not. In this observer's opinion it is possible by means of vaccines to keep the micro-organisms in check during any subsequent manipulative operation.

The alarming sequelæ of wound infection in the first months of the war, in spite of antiseptic treatment, called the whole principles of antiseptic treatment into question, with the result that attention was directed to the rôle played by the body tissues in combating pathogenic organisms. This new point of view is very fully expounded by Sir Almroth Wright under the title of "The Physiology of Wounds." His theories are based both on experiment and on observations made in the various zones of fighting where different conditions of surgical organisation held. He shows by experiment that the disintegrating leucocyte, by setting free trypsin, overcomes the antitryptic ("phylactic") power of the normal blood serum. In blood fluids deprived of this power ("ecphylactic") serophytic microbes can grow and multiply. By producing "kataphylaxis," whereby antitryptic serum, perpetually renewed, is transported to the foci of bacterial growth, the "ecphylactic" conditions there established are little by little abolished and the microbic growth arrested. The method of inducing "kataphylaxis" is the application of a 2½–5 per cent. solution of sodium chloride. The importance of early and careful recision and cleansing of the wound as opposed to the application of antiseptics was demonstrated by the fact that as soon as surgical hospitals were established behind the firing line and emphasis was laid on this treatment, putrid infections became rare.

The statistics of tetanus show how the mortality from this disease fell from 63·5 per cent. for the 1914 period to 37·9 per cent. in the 1916–19 period. In France and Belgium the total incidence works out at 2529 cases. The essential causal factor was proved to be the presence of tetanus spores in the soil of the battle area; outside French and Belgian territory in 1914–18 the incidence was negligible. The value of antitetanic serum in prophylaxis has now been established beyond all doubt.

The record of medicine in the war is a proud one, and perhaps the greatest of her triumphs has lain in controlling the scourge of typhoid. "Enteric fever during the war," says Sir William Leishman, "might well have been the subject of the blackest chapter in medical history." But effective measures of hygiene and prophylaxis by inoculation are a milestone in medical progress. A comparison of the annual incidence during the Great War, 2·35 per 1000, with that during the South African war, 105·00 per 1000, serves as a fitting illustration. A point of considerable scientific interest is brought forward in considering the possible protective action of typhoid vaccine against paratyphoid fevers. Statistical evidence would seem to support such protective action.

The pathology of dysentery is treated by Mr. Clifford Dobell and Colonel W. Harvey. Experience in all areas brought out the importance of accurate diagnosis from other forms of diarrhœa and enteritis, with a view to efficient treatment. Colonel J. G. Adami contributes a detailed and well-illustrated study of influenza. He summarises his data and results very concisely in three paragraphs. On the pathology of tuberculosis it is interesting to learn that the mortality rate was higher amongst men of the Labour Corps of the various countries. The statistics illustrate in a striking manner that the incidence of the disease is lower amongst the more urban and highest amongst the more isolated and scattered peoples. Chapters on Trench Fever, Spirochætal Jaundice, Acute Infective Polyneuritis, Gingivitis and Vincent's Angina, War Nephritis, and Encephalitis Lethargica complete the pathological survey. A section is also included dealing with the War Office Collection of Pathological Specimens.

A feature of several sections is the concise summary of new data. The work is fully annotated, and this, together with a complete and carefully compiled index, makes the volume one of high value to the pathologist and to the student of medical history.

Hygiene of the War. Edited by Maj.-Gen. Sir W. G. Macpherson, Col. Sir W. H. Horrocks, and Maj.-Gen. W. O. Beveridge. H.M. Stationery Office. 1923. In two volumes. Pp. 400 and 506. 21*s.* each.

In these two volumes General Macpherson and his colleagues give a complete record of the sanitary achievements of the war, of the difficulties and the dexterous methods employed to meet them. In former campaigns statistics show the balance of deaths from sickness to have been far in excess of those due to casualties. Although the increasing power of modern agents of destruction has disturbed this balance, at the beginning of the recent war disease still constituted the greatest menace to armies in the field. Moreover, as the unprecedented numbers of the troops engaged on active service greatly increased the danger, it was early recognised, in particular on the Eastern front, but hardly less on the Western, that the key to success was sanitation.

The truest estimate of the value of sanitation is given by the percentage of the permissible limit of inefficiency due to sickness in the field. This figure had been established before the war as 0·3 per cent. Any admission rate exceeding this was a danger-signal and indicated the presence of some preventable cause of disease or the onset of an epidemic. This indicator proved extremely sensitive in recording the sanitary condition of units in the field, and it is a great tribute to the thoroughness with which sanitation was carried out that the percentage for sickness, at any rate in France and Belgium, rarely reached the permissible limit. Stress is laid both in the editors' preface and throughout the volumes on the influence of the individual in maintaining the high standard of health and resulting high efficiency in the British troops. The sanitary condition of a unit is a good index of its discipline, and it was the well disciplined units in France that turned over their areas to reliefs in good sanitary order. The interest of all ranks in the paramount importance of hygiene was roused by the efforts of the numerous schools of sanitation at home and in the various theatres of war; and regulations constantly emphasised the responsibility of all units and ranks, under their respective commanding officers, with regard to measures of hygiene. Each man received definite instruction in the general principles of public health; the relation of disease to dirt, flies, and lice were kept constantly before his eyes by means of posters and pamphlets. The "sanitary conscience" which developed as a consequence became the prime factor in the prevention of wastage and in maintaining efficiency in the troops.

Major S. H. Daukes contributes a chapter on the growth and work of the schools of instruction in hygiene. This section is copiously illustrated with half-tone blocks which give a fair impression of the general appearance of essentially "home-made" field sanitary equipment, but a few more diagrammatic details might have been added with advantage. The main scope of hygiene may be summed up under four headings: water-supply, food, disposal of waste, and prevention of disease. Of these the water-supply presented by far the greatest problem, and almost half of the first volume deals with this alone. When one considers the world-wide extent of the war, and the varying geographical and climatic features of the different theatres, from the Arctic to the Tropics, the complexity of the problem is evident. The various methods of water purification are detailed at length in an appendix, with plans of the apparatus employed. The maps illustrating methods of water distribution in the East—a romance of science in itself—are on the whole poor and somewhat confusing.

The subject of rations forms one of the most interesting sections of the work. It is said, and truly, that an army fights on its stomach. So varied in requirements were the stomachs to be fed in the British troops that the task of rationing became an involved one. To take the case in East Africa, there was the problem of feeding not only the European, the Indian, and the African, but of catering for the peculiar dietaries of half-a-dozen African races, and now and again for imported labourers wholly unused to African conditions. The various dietaries employed for different races in different climes are accurately detailed, including those for prisoners of war. The economy of foodstuffs, and the increased efficiency brought about by scientific feeding and clothing, are well illustrated by the experiments carried out by Lieut.-Colonel E. P. Cathcart and Captain J. B. Orr.

More than half of Volume II. deals with the prevention of specific diseases. One section records the work done in drainage as a preventive measure in malaria, and embodies many photographs and maps. A long and detailed chapter on the prevention of infestation by lice is contributed by Colonel Sir W. H. Horrocks. Prior to 1914 it was known that lice were the vectors of typhus and relapsing fever, and during the war British and American investigators proved them to be carriers of trench fever also. In spite of all efforts to maintain personal cleanliness, lousiness constituted one of the minor horrors of the trenches. How difficult the louse was to eradicate is shown by the fact that even in the latter part of 1915 it was not uncommon to find 95 per cent. of the troops verminous after a 12 days' sojourn in the trenches.

The two volumes on Hygiene constitute a full and easily accessible record of the experience of the war. Much of the information gained is applicable only to war conditions, but the achievements with regard to water-supply and purification, the economy resulting from the increased knowledge of food values, and the control of disease by efficient sanitation, mark an advance in the civilisation of the world. Most of all one feels in reading these volumes that the awakening of the "sanitary conscience" in all who served in the forces will prove a lasting benefit to the whole human race.

Diseases of the War. Vol. II. Edited by Maj.-Gen. Sir W. G. MACPHERSON, Maj.-Gen. Sir W. P. HERRINGHAM, K.C.M.G., C.B., Col. T. R. ELLIOTT, C.B.E., D.S.O., Lt.-Col. A. BALFOUR, C.B., C.M.G. H.M. Stationery Office. 1923. Pp. 605. 25*s.*

THE second volume embodies, with the exception of three chapters, the conditions consequent on methods of warfare employed for the first time in the various fields. The major portion of the book deals with gas poisoning. The development of gas warfare, the different types of gas used, and the protective measures taken are fully considered in all their aspects. The bibliography appended to the various sections allows an estimate to be made of the work done on this subject both by the Allies and by the Central European Powers.

The results achieved in the prevention and treatment of venereal disease in the Forces during the war, and for some time subsequent to the armistice, are described by Col. L. W. Harrison. This chapter reviews all the important advances in treatment that have been made in recent years. Emphasis is laid on the preventive work done by the N.C.C.V.D. and other bodies. A consideration of the medical aspects of aviation shows that while the application of certain scientific tests to prospective air pilots was instrumental in weeding out numbers who would have proved, on the basis of past experience, unfit for war service in the air, the true criterion of fitness was the soundness of the candidate's stock, his aptitude for and prowess in games involving rapid coördination of hand and eye, and his powers of decision and judgment.

The ætiology, symptoms, and diagnosis of war neuroses and psychoneuroses (so-called "shell-shock") form an important section of the volume. Complete data of the results of treatment are not available, but in regard to the psychoneuroses the author states that "the general opinion of those who served in France was that the percentage of relapses in cases treated early and efficiently was small."

Official History of Australia in the War of 1914–1918. Vol. VII. *Sinai and Palestine.* By H. S. GULLETT. Pp. 844. 28*s.* Vol. VIII. *The Australian Flying Corps, 1914–1918.* By F. M. CUTLACK. Pp. 485. 24*s.* Sydney: Angus and Robertson. 1923.

THE purpose of this volume, says Mr. Gullett in his preface to Vol. VII., "is to record the work of the Australian Light Horse in the British campaigns in Sinai, Palestine, and Syria during the years 1916, 1917, and 1918. It is in no sense a complete narrative of those campaigns." But as he says further on, "the story in its bolder features covers the whole British force." Anyway, Mr. Gullett has succeeded in putting upon paper an account of the operations which gives the non-professional reader a life-like picture of the campaigns, of which the most striking feature, perhaps, is the heroic way in which both horses and men stood out against thirst and fatigue. The arrangements for the water-supply, which gradually got better and better, make most interesting reading. As to medical matters headquarters' handling of the transport of wounded seems to have left much to be desired. On the other side it is pleasing to note that the Turks scrupulously respected the Red Cross, and that a few days before Romani was fought a German airman dropped a message asking the Australians to mark their ambulances clearly so that they should not be bombed. This was done and subsequent bombers carefully avoided the ambulances. But the whole book is well worth reading as a record of work for the Empire which few of us have appreciated at its full value.

In Vol. VIII. the war history of the Australian Flying Corps has been mainly written from the official diaries of the four Australian flying squadrons now in the archives of the Australian War Museum, but the narrative has been largely supplemented from other sources, notably from notes written by Captain T. W. White, Lieut.-Colonel W. O. Watt, and many other officers whose names are duly acknowledged by the author. Both little air raids and the last great air battles are described, and we get a very vivid picture of what warfare in the air means, and how extraordinary are the calls which those who served in the air forces have to meet upon their courage and their resource. An interesting chapter at the end of the volume gives the story of the flights or attempted flights home to Australia undertaken by some Australian airmen.

A TEXT-BOOK OF MIDWIFERY.

For Students and Practitioners. Fourth edition. By R. W. JOHNSTONE, C.B.E., M.A., M.D., F.R.C.S.E., Lecturer on Midwifery and Gynæcology in the School of Medicine of the Royal Colleges of Edinburgh. Edinburgh: A. and C. Black, Ltd. 1923. With 263 illustrations. Pp. 508. 15*s.*

IN the fourth edition of this book a complete revision has been carried out. In the sections dealing with venereal disease the author has had the assistance of Mr. David Lees and the paragraphs on antenatal supervision have been contributed by Dr. F. J. Browne. The book is one of a handy size in which the subject is fully considered, and it is illustrated by a number of excellent drawings. It forms a good summary of the main principles of obstetric medicine as they are taught in the Edinburgh School. In discussing the structure of the corpus luteum the author inclines to the view that the cells are derived from the theca interna, but does not mention the modern theory that in reality there are two types of cells included in this structure, the one derived from the theca and the other from the granulosa cells; but, as he rightly points out, such a controversial subject can hardly be fully discussed in a text-book of this character. The account of the development of the placenta is excellent and well illustrated. An interesting description is given of twilight sleep which the author regards in certain conditions as a safe and certain method of producing amnesia with no undue risk to either the mother or the child. In view of Dr. Johnstone's practical experience his conclusions are of considerable value on this subject. The chapter dealing with the toxæmias of pregnancy, and especially the section on eclampsia, are very good and will repay reading. The author gives preference to the policy of elimination and non-interference, and in this he would have the approval of the great majority of obstetricians of experience at the present day. It is interesting to find practically no support for the practice of performing Cæsarean section in these cases. As might be expected, there is a good account of the advantages of Milne Murray's axis-traction forceps, of the instrument itself, and the best method of using it, with a number of clear illustrations. There is also a valuable table showing the advantages and disadvantages respectively of axis-traction forceps and version.

This edition can be recommended to students and practitioners as a clear and well-written guide to the practice of midwifery.

A TEXT-BOOK OF DENTAL ANATOMY AND PHYSIOLOGY.

By J. HUMPHREYS, M.D.S., F.S.A., F.L.S., and A. W. WELLINGS, M.D.S., L.D.S. London: E. Arnold and Co. 1923. Pp. 323. 16*s.*

IN the preface to this book the authors tell us that it has been written specially for the dental student. In this respect it differs from the majority of other books on this subject, which are written for the student of zoology also. Since the requirements of the former are less extensive, especially in comparative dental anatomy, there would seem to be room for such a book as this, which does not go beyond the curricula of the examining bodies in dentistry. Compared with Tomes's "Dental Anatomy," practically the only other book on this subject available for the student in this country, it is only about half the size. When one reflects that Tomes's book, for all its length, does not pretend to be an exhaustive treatise on the subject, it is obvious that the authors of this book have practised a severe compression. Indeed, we are not certain that the book is full enough even for the dental student, and we believe that the authors could have done more justice both to themselves and to their subject had the book been extended by another 50 pages. The introductory chapter to the section on comparative dental anatomy could have been lengthened with advantage.

Since comparative dental anatomy and physiology make up the expression of the principles of evolution applied to the teeth, it is necessary that the student should have a good grounding in these principles, otherwise the significance of the various changes which have occurred in the teeth and jaws will become meaningless. The student of zoology will naturally possess such knowledge before he studies comparative dental anatomy, but the dental student in most cases will make his first serious acquaintance with evolution when he commences his study of dental anatomy. For that reason we should have been glad to have seen a fuller account of Darwin's work and its later developments. The sections on the macroscopic and microscopic anatomy of the human teeth are brief, but adequate. They are not entirely free from errors. Thus the statement that the presence of the sheath of Hertwig has not been demonstrated in human teeth (p. 65) is corrected later on by an account of H. Mummery's work, which is, indeed, noted on p. 84. We regret that the authors have not included some account of L. Bolk's work on the development of the teeth. Surely the time has arrived when a frankly elementary text-book on dental anatomy should make some reference to these striking investigations. The illustrations are numerous and usually good, though some of the drawings of human teeth do not appear to be anatomically correct. The photo-micrographs are excellent, and those of Nasmyth's membrane are among the best we have ever seen.

We commend this book as a useful addition to the literature on dental anatomy.

MAN; WHAT? WHENCE? WHITHER?

By R. C. T. EVANS, M.B., B.S., M.R.C.S., L.R.C.P., D.P.H., B.Sc., F.C.S., Captain R.A.M.C. (ret.). London: Simpkin, Marshall and Co.; Chatham: Barrett and Neves, Ltd. 1922. Pp. 146. 2*s.*

EVERY thinking man has at one time or another asked himself the question of the origin of the human race and its destination. Has man arisen by the fortuitous interplay of chemical and physical forces? Is he a mere accidental product of the material world? or is he the result of the working of a superhuman intelligence?

Dr. Evans has himself felt the need for an answer to these important questions, and he has written this book in the hope that the arguments and facts which have served but to strengthen his faith may prove of equal service to others. He holds that there is indisputable evidence that there has been an evolution from the very beginning of life in this world, that this evolution has led to the formation of the highest forms of animal life, and that man himself has been derived by a slow advance from lower forms. He points out that the appearance of a mind has been a further step in the development of organic life; that consciousness is not merely an epiphenomenon, but that it is the result of an essential advance in evolution. He discusses the question of free will, and advances his reasons for thinking that its existence has resulted in the development of a class of beings who in course of time may learn always to choose the right course and reject the wrong. He deals with the question of the origin of suffering and pain, claiming that in their results they serve a valuable purpose.

The book is suggestive and will provoke thought. The questions set out in the title have been discussed with care, intelligence, and moderation.

THE LANCET.

LONDON: SATURDAY, OCTOBER 13, 1923.

THE REMUNERATION OF INSURANCE PRACTITIONERS.

THE offer of the Minister of Health in respect of the remuneration of Insurance practitioners was made in a communication to the Medical Secretary of the British Medical Association last week and appears in our columns to-day. We may assume that our readers are familiar with the offer and perhaps to such an extent with the arguments upon which it is based that little exposition is needed. These arguments are mainly statistical, paragraphs 11 to 13 of the Minister's letter giving the arithmetical justification for an offer of 8*s.* 6*d.* as the capitation fee. The Minister appeals to arithmetic in support of the usual procedure of arbitration, for more or less the mean between the opposing views of the approved societies and the panel committees, has been proposed. The 1920 award which fixed the capitation fee at 11*s.* is ignored, and the reduction of that figure two years later to 9*s.* 6*d.* is held to have inflicted no hardship upon the practitioners as shown by the fact that no resignations from the service were received on that account. We find that deduction a little specious, for surely in such circumstances only resignations en bloc can be considered as forming any practical protest. Individual members may accept a thing without liking it, and be the very persons who will resign from a service if any general movement in that direction takes place. Their inactivity does not mean acquiescence.

As was perfectly well known would be the case, the Insurance Acts Committee of the British Medical Association took little time in coming to a conclusion that the offer of the Minister of Health is unsatisfactory, and on Monday last a detailed reply to the Minister's letter was handed in. This letter will also be found in our columns, and it is such a clear and careful presentment of the reasons why the Committee cannot welcome the proposals of the Minister that any attempt to tell the message in fewer words might only obscure the points. The Committee do not consider that it is logical to compare the amount which might be paid to a general practitioner as ordinary fees by private patients with the amount which officers entrusted with the administration of medical benefit under the Insurance Acts should be paid, for the services of these officers is on a different plane, they being agents of preventive as well as of curative medicine, and members of a large scheme for the supply and collation of valuable information and for the issue of certificates. Further, the Committee challenge the statement of the Minister that the result of a capitation fee of 8*s.* 6*d.* brings the standard of living for doctors to a pre-war level, while the analogy drawn between the payment of doctors and that of the Civil Service in its higher grades is dealt with as it has been on many previous occasions. We have often pointed out that this analogy must be considered partial and misleading, if only because a doctor in general practice is on duty all day and all night and not only for certain hours, his receipts are raided by his expenses in a way which occurs to no Civil Service official, he has no pension, and no statutory holiday. The Committee, in putting forward these views, are advising the Minister of Health on the directions in which they will assist the representatives of the Panel Committees at a Conference to be held on Oct. 18th. No decision rests with the Insurance Acts Committee so that no more categorical answer than that which has been sent can be given at this stage. The views of the Committee are set out in the following recommendations :—

(*a*) That the offer of the Minister of 8*s.* for five years be definitely rejected.

(*b*) That the offer of the Minister of 8*s.* 6*d.* for three years is inadequate and that arbitration upon the lines of that of 1920 be asked for.

(*c*) That in the event of such arbitration being refused the offer of 8*s.* 6*d.* for three years be definitely rejected.

(*d*) That any agreement with the Ministry on the question of the capitation fee be subject to agreement being arrived at with regard to the special circumstances of rural practitioners.

The question whether the country is likely to get the service which has been promised to it in return for the lowest salary which arithmetic can justify is one that might well be put to the leaders of coöperative movements in any trade, in which connexion we seem to have heard such payments roundly denounced. The approved societies say that even the capitation fee of 8*s.* 6*d.* will deprive them of a surplus that they intended to use for medical purposes, a statement which does not wholly tally with the views of the Minister, who almost suggests that there will not be any surplus at all. But if these opposing views can be made to agree, and it is found that a surplus exists, who is to decide in what way it can best be used for medical benefit—the approved societies or the medical profession ? In our view this is the domain of the Ministry of Health. Increased hospital accommodation, the foundation of maternity homes—to mention two obvious needs of the country—have their claims, but improved medical service and coöperation with the preventive authorities come ahead of either. Until we have good domestic medical service we do not even know where we stand in respect of hospitals. The spirit must be protested against which leads the approved societies to constitute themselves as authorities upon the best spending of money for medical benefit. The societies cannot be the predominant partner in a partnership which does not exist. Any surplus the societies may show belongs to the public, and the right place to obtain decision as to its allocation is at the Ministry of Health.

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THE CASE FOR VACCINATION.

IT is difficult for a medical man to select from the mass of literature on vaccination articles, suitable for the educated layman, which set out without undue heat arguments in favour of prophylactic inoculation against small-pox and deal critically and patiently with the objections thereto. Propaganda designed to stimulate the less thoughtful section of the community is often valueless for its purpose if temperate and well-reasoned ; on the other hand, when the seasoning is applied with too heavy a hand the discriminating person turns from any dish with distaste.

A masterly presentation of the case for vaccination forms the principal feature of the October issue of *The Fight Against Disease.*[1] The article is an expanded and annotated version of an address delivered to Members of Parliament in a committee room of the House of Commons on July 25th by Dr. JOHN C. McVAIL, at the request of the Minister of Health. Dr. McVAIL submits for consideration four propositions : (1) That small-pox is worth preventing, (2) that it can be prevented by vaccination, (3) that it cannot be prevented without vaccination, and (4) that properly conducted vaccination is very safe; each proposition is dealt with in turn. First, Dr. McVail distinguishes between the mild type of small-pox, such as was seen in Gloucester this summer, and the severe type. He points out that the mild type was recognised before the days of vaccination. Jenner saw it in Gloucestershire in 1789, and it prevailed elsewhere in 1806. An eighteenth century writer declared that there was one sort of small-pox a doctor could not cure, and another which a nurse could not kill. But the severe type was probably much commoner than the mild in past centuries, and was certainly so in the nineteenth century. As regards tendency to spread, mild small-pox has two qualities, which act in opposite directions. On the one hand, it is difficult to diagnose—the symptoms are often trivial and cases may be missed; on the other, the infectivity is low because the power of infection resides in the eruption, and the less the eruption, the less is the material for conveying the disease to others. The mild type reaches Britain commonly from North America, the severe type from the East, or from North Africa, often by way of the continent of Europe, and is apt to show itself first in London. Last year's outbreak at Poplar Workhouse had a heavy fatality rate, but as it occurred within a ring fence, it could be dealt with promptly, and the disease was exterminated by vaccination and isolation. A register of births and deaths, with ages and causes, at the little town of Kilmarnock, kept between the years 1728 and 1764 by an old schoolmaster, gives some indication of the ravages caused by uncontrolled severe small-pox in the days before Jenner. During this period nine epidemics took place; for most interesting statistics Dr. McVail's paper must be consulted, but it is noteworthy that each new epidemic found its victims amongst that community in the children who had been born since the last outbreak, the older population having been protected by an attack during the previous epidemic. That small-pox is worth preventing is, indeed, hardly open to question. As to the future, Dr. McVail makes no attempt to prophesy. In England and Wales the annual notifications of small-pox fell from 289 in 1911 to 7 in 1917. Since 1917, however, the figures have mounted from 7 to 63, to 311, 280, 336, and last year to 973, while in the first half of the present year the total was 1225. No prudent man dare prophesy whether the disease in its non-fatal form will persist and breed true and remain mild, or will develop into severity and fatality. Since Dr. McVail's address was delivered a report by the U.S. Public Health Service, Washington, has come to hand calling attention to increasing virulence of small-pox in the United States. In any case, precautions should be taken. The measures worth consideration are vaccination, hospital isolation, and sanitation. Dr. McVail does not summarise the accumulated experience of 120 years, on which faith in vaccination is based, but gives briefly the nature of the evidence on which medical confidence rests, showing that if the diminution in small-pox be considered, in places and in times, side by side with the practice of vaccination and revaccination, strong proof of causal relationship appears. The larger incidence of small-pox in countries where vaccination has been neglected, the striking immunity of revaccinated small-pox nurses, the fact that, in towns where small-pox prevails, more of the unvaccinated than of the vaccinated are attacked, especially if the vaccination is recent—these and other arguments are elaborated with convincing illustrative figures. Finally, Dr. McVail points out that the whole practice of vaccination is in accordance with modern scientific knowledge of the prevention of infectious diseases. Jenner believed that cow-pox was small-pox of the cow. His belief was scouted, but is now universally accepted, and vaccine lymph may consist of small-pox cultivated on the cow and turned into cow-pox.

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[1] Published for the Research Defence Society by Macmillan and Co. 6*d.*

As to alternative methods of prevention and control, hospital isolation alone would be useless, since every case sent into hospitals would be a centre of infection to nurses and attendants. Dr. McVail gives full recognition to the value of sanitation in respect of small-pox, but at this stage of the housing problem, at any rate, it cannot replace vaccination. The safety of properly conducted vaccination is the last proposition to be considered, and here again the writer makes no extravagant claims but almost understates the situation. Whatever the possible dangers in the past, he points out that with calf lymph there is no possibility of transmission of syphilis, because calves are not subject to that disease. As to tuberculosis, the animal from which any lymph is derived is subjected to a careful examination, the lymph being destroyed if there is the slightest cause for doubt as to its purity. The treatment of lymph in the Government Laboratories is most valuable in the elimination of pathogenic organisms. Vaccine produced in this way is as safe as science can make it. But nothing is absolutely safe; a scratch of a pin may open the door to erysipelas or lockjaw. The bite of an insect may be fatal, and the vaccine vesicle on the arm may become infected, as may any other wound. Such accidents, while extremely rare, are still deplorable, and it is difficult to see how they can be altogether avoided, though it is obviously of the utmost importance that every effort be made to prevent any kind of mismanagement of the vaccination vesicle. A paragraph on the Vaccination Acts concludes this admirable survey of vaccination. Dr. McVail shows no lack of sympathy with the sincere objector, nor does he advocate compulsion. He pleads only for the exercise by Parliament of some degree of pressure in support of its belief in vaccination, not by attempts at compulsion, which would do far more harm than good, but by drawing some practical distinction between a parent no doubt wrong-headed yet sincere in his conviction that vaccination is evil, and another parent who is merely indifferent or neglectful.

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WATER INTOXICATION.

The water-intake of normal man is controlled by the sensations of thirst and of satiety, and the latter, though coming less noticeably into consciousness than the former, appears to protect against too great an intake, as does the former against depletion. In addition to these psychic mechanisms of protection there are at least two others which prevent dangerous excess. The excretory power of the normal kidney has a relatively enormous range, as is illustrated by the experiment of J. G. Priestley,[1] who was able to drink 5½ litres of fluid within six hours and passed 5460 c.cm. of urine during the same period. A further protective influence in man is exerted by the stomach, which holds up any great excess of ingested water and, by causing vomiting, prevents further intake. On the pathological side an enormous capacity to drink water is exhibited by patients with diabetes insipidus, the most notable example being one recorded by Trousseau,[2] in which the patient drank 40 litres of water per diem. It is well known that in these cases the urinary output is more than equal to the intake, and there is probably a depletion rather than an excess of water as far as the bodily tissues are concerned. If, however, steps are taken to prevent the diuresis in these cases, serious symptoms may arise. LARSON, WEIR, and ROWNTREE have recorded[3] the occurrence of such symptoms—headache, nausea, asthenia, and incoördination of movement—in three cases of diabetes insipidus in which the diuresis had been checked by the administration of pituitary extract without the patients having diminished their water-intake. Similar effects were produced in normal dogs by the administration of pituitary extract, and, believing the results to be due to water intoxication rather than to the drug, L. G. ROWNTREE[4] has now performed an extensive series of control experiments.

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[1] J. G. Priestley: Jour. of Physiol., i., 304, 1916.

[2] A. Trousseau: Lectures on Clin. Med., London, 1867.

Water in excessive amounts was administered through stomach-tubes to dogs, cats, and rabbits. In all these animals the symptoms produced were very striking. Retching and vomiting were followed by violent convulsions, similar to those produced by strychnine poisoning. These convulsions tended to recur at intervals of a few minutes, the animals in the interval being in a state of asthenia often bordering on coma. Death in coma, or during a convulsion, frequently occurred, but if recovery took place the animal was usually normal in a few hours after the cessation of water administration. In rabbits and guinea-pigs little actual vomiting occurred and the onset of convulsions was more rapid than in dogs, in whom there was frequent vomiting and sometimes diarrhœa. In rabbits it was possible to produce a condition of subacute intoxication by administering water in amounts equal to one-fourth of the body-weight daily over a long period. Careful post-mortem examination of these animals disclosed very little anatomical change in the tissues, the liver and kidneys showed a moist surface on section, but little cellular change could be made out on microscopic examination. Œdema could be seen in three situations, in the connective tissue of the renal cortex, in the distribution of the portal vein, and around the vessels of the brain. Careful control experiments seem to show that the symptoms could not be accounted for by the passage of the stomach-tube nor by gastric distension. The rapid absorption of digestive products or enzymes was also considered and negatived, and similar experiments on dogs with Eck's fistula led to the same effects which appears to eliminate any explanation on the grounds of hepatic œdema. It is noteworthy that the symptoms could not be reproduced either by rectal or intravenous administration, though the occurrence of hæmolysis made the latter series of experiments difficult to interpret. Actual measurement of the intracranial pressure showed that a definite rise occurs, and the intravenous administration of hypertonic salt solutions was effective in preventing the symptoms in subsequent experiments. From this ROWNTREE concludes that the main effects of water intoxication are due to the increased intracerebral pressure which occurs when the water-intake largely exceeds the output.

This striking series of observations must revive interest in the possibility that water intoxication alone may account for many of the phenomena of uræmia. Retention of urea, of uric acid, of creatinin, and of unknown toxic nitrogenous substances have successively been accused as responsible. More recently O. L. V. DE WESSELOW,[5] in this journal, has called attention to the inorganic phosphorous content of the plasma in nephritis, showing that an increased concentration of phosphates in the blood is of perhaps greater prognostic importance even than nitrogen retention. It is to be hoped that in future work ROWNTREE will be able to throw further light on the relation of water intoxication to these problems, which are of the greatest interest both to clinicians and to chemical pathologists.

Annotations.

"Ne quid nimis."

A HOPEFUL OUTLOOK IN MEDICINE AND DENTISTRY.

THE opening address to students of the Royal Dental Hospital, London, was delivered on Oct. 1st by Dr. Addison, whose message was the need of preserving a sense of proportion in the medical outlook. Professional problems must be approached from a public point of view; it was essential, he said, for the doctor or dentist to see things as the ordinary man sees them. He referred to two outstanding needs of our time as, first, the need of more knowledge, and second, economy—the need of getting our money's worth. Scientific research was a paying proposition, though this was not always recognised. Money spent on research brought back huge profits, not only in the saving of life but financially as well. In speaking of the means of spreading knowledge, Dr. Addison paid a tribute to THE LANCET; it was impossible to calculate, he said, the work done by such a journal, distilling every week fresh knowledge from many sources, and keeping doctors abreast of what was being done in all parts of the world for the advancement of medical science. Dr. Addison referred to the Dentists Act of 1921 in hopeful terms, since it could not fail to raise the status of that branch of the profession of healing.

Dr. William Hunter's address to the students of Charing Cross Hospital when distributing the prizes was no less optimistic. He maintained that there was much romance to be found in our profession if the student looked out for it. The amount of knowledge which the student was required to imbibe, and periodically disgorge to the examiners, was indeed stupendous; teachers to right, left, and in front of him volleyed and thundered out knowledge, sometimes regardless of the insoluble problem of how to get a quart of fluid into a pint pot. Yet still the day contained no more than 24 hours. Fortunately, however, the student maintained a sense of humour, which even the enthusiasm of his teachers could not altogether damp; and the constant contact with human beings, and the interest of the combat with disease, made life in the medical profession one great adventure. Dr. Hunter proceeded to sketch the different eras in the advances of medical knowledge, making special reference to the importance, in medicine as well as surgery, of sepsis, and the recent beneficial results in mental disease arising from careful attention to septic foci. There should be no attempt, he said, to separate the different departments of medical research and knowledge, and the clinical aspect should have first place. The profession was a hard one, the emoluments, except to a few, and those chiefly in the surgical branch, were not great; but it carried with it a human interest which nothing else approached, a high purpose, and possibilities of adding to the happiness of millions of people.

VACCINES IN CHRONIC OSTEOMYELITIS.

IN a paper[1] read in Stockholm at the fourteenth meeting of the Nordisk Kirurgisk Forening, Prof. T. Rovsing, of Copenhagen, gave a laudatory account of the action of autogenous vaccines in cases of chronic or relapsing osteomyelitis. In the acute stage of this disease he is doubtful as to the efficacy of vaccines, but in the chronic stage they frequently act like a charm. Since 1915 he has treated 23 cases of chronic osteomyelitis with vaccines. In as many as 16 cases the infecting organism proved to be the *Staphylococcus aureus*. In four other cases the *Staphylococcus albus*, in two the typhoid bacillus, and in one the paratyphoid bacillus were found. In every case there was a definite reaction to the injections, which in almost every case gave a dramatically rapid turn for the better to the course of the disease. This was often the case even when the infection had lasted for a decade or two, and had been characterised by the persistence of fistulæ or by recurrent exacerbations. The prompt and complete recoveries achieved in such cases showed vaccine therapy in marked contrast to the more primitive methods of the operating surgeon. Prof. Rovsing does not, however, underrate the ancillary services that the operating surgeon may render in such cases, and he advocates the operative removal of sequestra as a preliminary to vaccine treatment. With regard to the comparative merits of autogenous and stock vaccines, he is emphatically in favour of the former, particularly when the infecting organism belongs to that large family generically referred to as the *Staphylococcus aureus*. To hope that a stock vaccine made from one member of this group will be beneficial in a given case of *Staphylococcus aureus* infection is, in his opinion, to show a sublimely foolish belief in the patient's luck against heavy odds. But he admits there are cases in which the surgeon must suppress his contempt for the second best and give a stock vaccine. All the three cases of osteomyelitis belonging to the typhoid group responded satisfactorily to vaccine treatment, and the success in one was remarkable as the patient, aged 44, had suffered from osteomyelitis of the radius since the age of 22. Prof. Rovsing gives the name of a London surgeon who diagnosed the case as one of syphilis, with the result that, wherever the patient travelled, he was pursued by mercury, iodine, and salvarsan. These remedies did no good, and when the Wassermann reaction was found to be negative and a history was obtained of two attacks of typhoid fever, one at the age of 13 and the other at the age of 20, the typhoid character of the infection was suspected, and an autogenous vaccine, made from the typhoid bacilli found, rapidly restored the patient to complete health, which has been maintained during the six years which have since elapsed.

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[3] E. E. Larson, L. G. Rowntree, and J. F. Weir: Arch. Int. Med., 1922, xxix., 306.

[4] L. G. Rowntree: Arch. Int. Med., 1923, xxxii., 157.

[5] O. L. V. de Wesselow: THE LANCET, ccv., 163, 1923.

[1] Hospitalstidende, August 8th, 1923.

EVIDENCE OF PATERNITY.

SOME observations made by the bench in disposing of an affiliation order appeal at the recently held quarter sessions for the County of Devon deserve notice. Sir Francis Newbolt, K.C., the chairman, is reported in the *Times* of Oct. 6th to have said that—

> "Since the Slingsby case and a recent case in the Divorce Court, which caused a great amount of discussion, it had become known, even to the general public, that the question of paternity might often be settled by purely scientific evidence, and although that at present was beyond the means of persons generally concerned with affiliation orders, it was a matter for careful consideration whether steps should not be taken to circulate sufficient information for ordinary medical practitioners to give evidence of certain elementary indications. In the case under consideration such evidence would have been of great value."

Any comment on these remarks must be qualified by the fact that the report from which we quote is brief. In this connexion we recently referred[1] to the Slingsby legitimation action and the divorce case of Russell *v.* Russell, and in view of the learned chairman's suggestion it may be desirable to make some further allusion to the subject. If he is referring merely to the aids which an expert might give in the detection of family likeness of feature, then no doubt it is possible to summarise and classify various points in which an external similarity may manifest itself, just as a handwriting expert may draw attention to minutiæ which judge or jury can appreciate but might not readily discover for themselves. Since, however, affiliation proceedings usually take place at a time when the infant's features are as yet immature and undeveloped a note of caution may be sounded. In the Slingsby case the boy was several years of age; his features had attained a certain fixity which facilitated the detection of resemblances, and there is no doubt that Sir Bargrave Deane, who tried the case, must have derived much advantage from the expert knowledge of the great sculptor Sir George Frampton, whose assistance was invoked. In the Russell case the baby was of more tender age, and Mr. Justice Hill was careful to warn the jury against giving too much weight to the element of physical resemblance. If, on the other hand, Sir Francis Newbolt's "elementary indications" are a reference to the scientific investigation of blood-groups, to which attention was drawn in these columns in 1922,[2] it is again necessary to say that the positive results of this attractive branch of research are, for juristic purposes, scarcely complete. We repeat this note of warning, since it would be unfortunate if it were generally supposed that formulæ can be broadcasted by the aid of which the paternity of a child can be with certitude ascribed to one man or denied to another without reservations. It would be still more unfortunate if, by a misunderstanding of Sir Francis Newbolt's briefly summarised observations, an impression arose that medical witnesses were prepared to supply the necessary evidence in these cases provided that the necessary funds are forthcoming.

THE TREATMENT OF MALARIA.

AN opportune and valuable monograph[3] recently published deals with many pressing points in the treatment of malaria in the following order: (1) The value of cinchona febrifuge; (2) the relative merits of the different alkaloids of cinchona in malaria; (3) the value of some tasteless preparations of quinine; (4), (5), and (6) intramuscular, intravenous, and rectal injections of quinine; (7) the dosage of quinine; (8) the examination of the urine during quinine treatment; (9) quinine resistance. Cinchona febrifuge is as efficient, therapeutically, as is quinine in malaria, but it is much cheaper; there are many preparations of different strengths being sold under this name. The constitution of this drug should be legally defined; that made by the Government of India contains 54·65 per cent. of the crystallisable alkaloids quinine, quinidin, cinchonine, and cinchonidine. Contrary to the views of Acton, Dr. Fletcher finds that these four crystallisable alkaloids appear to be of equal value in bringing about the disappearance of malarial parasites in doses of 10 gr. given twice daily, at which strength none of them produces toxic symptoms. The alkaloid quinoidine is much more toxic and fails to destroy malaria parasites. Dr. Fletcher has done a real service in pointing out that certain tasteless preparations of quinine—i.e., quinine alkaloid and euquinine—are effacious in the cure of malaria; while, on the other hand, quinine tannate and quinine dicarbonate are quite useless. We are in entire agreement with what he has to say regarding the intramuscular injection of quinine. Serious illness and mutilation may occur as a result, and, in some cases where this has happened, the drug could have been equally well given by the mouth. When injected into the muscles quinine is not absorbed as quickly as when taken by the mouth, neither is it more potent in preventing relapses. Quinine produces immediate necrosis of the tissue into which it is injected; the dead muscle is usually absorbed in a few weeks, but may remain as a source of danger, forming an excellent medium for the growth of bacteria which may gain access either from without or from the blood-stream. These injections, then, should be reserved for patients who are dangerously ill with malaria, or for those who are comatose, or for some reason unable to swallow. In the same way the intravenous injections of quinine should be only reserved for the most urgent cases and given by a skilled physician. As regards the rectal injections of quinine, no previous writer has ever questioned the absorption of the drug through the intestinal mucosa, but Fletcher finds quinine is too irritating for administration per rectum, and causes an actual superficial necrosis of the mucous membrane; nor was there any evidence in his series of cases that any of the drug was absorbed or appeared in the urine. Great stress is laid on the examination of the urine in all cases on quinine treatment. This should be done by means of Mayer's reagent as a routine. In this way he has shown that at least 25 per cent. of the quinine prescribed in native hospitals is not swallowed by the patients at all. He explains the discrepancy of the results obtained by various observers, as well as the so-called resistance to quinine, which was observed during the war, as being due to the non-absorption of the drug. The so-called resistance is apparent and not real, and is usually due to the quinine not being swallowed. It may be also due to the adulteration of the quinine, which takes place in India and Singapore to a very great extent. One scarcely realises here that in the East the drug is worth its weight in silver; more than once it has been found that the whole supply of the quinine mixture of a large hospital was only one-third of its prescribed strength, the drug having probably been stolen and sold elsewhere.

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[1] THE LANCET, August 11th, 1923.

[2] THE LANCET, 1922, ii., 285.

[3] Notes on the Treatment of Malaria with the Alkaloids of Cinchona, No. 18. Studies from the Institute for Medical Research, Kuala Lumpur, Federated Malay States. By William Fletcher, M.D. Cambridge, Bacteriologist Institute for Medical Research, Kuala Lumpur. London: J. Bale, Sons, and Danielsson, Ltd. 1923. Pp. 91. 6*s*.

THE SAVILE CLUB.

THE committee of the Savile Club have published for the private use of its members a history of the club between the years 1868 and 1923, but there is, we understand, no indiscretion in making public reference to an interesting volume. The club actually reached its jubilee before the war was concluded, so that at what might have been considered the appropriate stage in its existence a summarising volume could not be issued conveniently.

A quotation from No. 34 of the *Spectator*, published on April 9th, 1711, is employed at the beginning to answer a question which is not infrequently asked, namely: What are the principal characteristics of the Savile Club? The quotation runs as follows: "The club of which I am a member is very luckily composed of such persons as are engaged in different ways of life and deputed, as it were, out of the most conspicuous classes of mankind; by this means I am furnished with the greatest variety of hints and materials, and know everything that passes in the different quarters and divisions, not only of this great city, but of the whole kingdom . . . there is no rank or degree . . . who have not their representative in this club." The principles on which the Savile was established, under the name of the New Club, were three: (1) A thorough simplicity in all arrangements; (2) the mixture of men of different professions and opinions and a careful process of election; (3) early evening meetings once or twice a week. And the close association of the club with medicine, which has always been maintained, is indicated in the earliest document in existence relating to the club. That document records an invitation from the Medical Club, at 9, Spring-gardens, London, S.W., to the Eclectic Club, suggesting the occupation of certain rooms to sub-tenants. The offer was accepted by 64 persons, who constituted the original membership of the New Club, and the pecuniary guarantors. Among these are to be found such well-known people as John Morley, Henry Sidgwick, Prof. Fleeming Jenkyn, Prof. Bonamy Price, Dr. T. Fowler, later President of Christ Church College, Oxford, W. E. Forster, the great statesman, Thomas Woolner, the sculptor, and Auberon Herbert. The direct medical connexion is indicated by the inclusion among the 64 original members of Andrew Clark, of Middlesex Hospital—a distinguished physican who suffered from bearing the same name as a better known man, Ernest Hart, and Alan Herbert, the founder of the Herbert Hospital in Paris. To Auberon Herbert, whose elder brother the fourth Lord Carnarvon was also an original member, is given the distinction of being the real founder of the New or Savile Club.

The club proved attractive to the varying order of men most indicated for membership, for the list of original elections, bringing the number up to 100, comprised Leslie Stephen, Lord Dufferin, the great ambassador; Bryce, the historian and statesman; Sant and H. W. B. Davis, typical artists of their day; Sir Samuel Baker, and Prof. R. C. Jebb. The first medical recruits were Dr. John Cavafy and Dr. P. H. Pye-Smith. In two years the club became too large for its subtenancy, while its membership was increased by such adherents as Charles Dilke, Leonard Courtney, and Mr. A. J. Balfour, and its scope enlarged by an Anglo-American movement. In 1871 a house was purchased in Savile-row, the club then adopting its present name. The influx of distinguished persons continued, as inspection of the alphabetised list of members at the end of the volume shows, and in particular the following may be mentioned: three Darwin brothers, Tyndall, Prof. Henry Jackson, Andrew Lang, Justin McCarthy, J. P. Mahaffy, Poynter, William Thomson (Lord Kelvin), Walter Besant, Robert Louis Stevenson, and Francis Balfour. The intellectual level of the club was exceedingly high, the thinking was extremely broad, and at this time a listening Savilian heard his club described as: "An awful swell club: they won't elect you unless you're an atheist or have written a book." In 1882 the pressure on the premises having again become acute, the present house in Piccadilly was bought from Lord Rosebery. Through these changes the original features of the club remained, and remain, in exposition of the club's motto—Sodalitas: Convivium. In this direction the value of the table d'hôte dinner at a moderate price was realised at the first. It was deliberately introduced by the founders of the club with the view to promoting not merely social but friendly relations between the members. No one supposed that a general dinner at a fixed time was the most convenient or most luxurious method of supplying a meal to anyone who might want it, but the table d'hôte was held to make for mutual friendship among the members which was the agreed purpose of the club. There have been times in the history of the club when the table d'hôte has come in for criticism, but no foolish reformer has here been able to make headway.

In the minds of many medical men, mention of the Savile Club calls up the most pleasant of memories. Either they are or they have been Savilians, and have made many cherished friendships within its walls. We in this office have a sad and yet sweet liaison with the club. Constantly, when a prominent member of the medical profession dies, we receive messages, for private information or for use in a biography, from correspondents whose knowledge and affectionate feelings have been based upon an intimacy gained in the Savile. The authorities of the club have done well to publish these interesting annals.

EXOPHTHALMIC GOITRE IN CHILDHOOD.

Dr. Henry Heiman,[1] of New York, who has recently observed three examples in children, aged 4, 5, and 7 years respectively, remarks that although exophthalmic goitre is rare in childhood, a large number of cases have been reported. In a series of 1512 cases of exophthalmic goitre at the Mayo Clinic there were five children, or 0·3 per cent., under 10 years of age, the youngest being 4 years old. Barret, who made the most exhaustive study of the condition in childhood in his Paris thesis of 1901, collected 39 cases in children, the youngest of whom was aged 2½ years. Sex distribution shows a definite preponderance of females, 28 of Barret's cases being girls and 11 boys. Although in Dr. Heiman's cases careful inquiry into the family histories did not reveal any hereditary tendencies, heredity has played an important part in a number of the recorded cases, as in the family reported by Dubreuil-Chambardel, in which the grandmother, mother, and two daughters all had exophthalmic goitre; and in that described by Souques and Lermoyez, in which there were seven cases. In several instances, as in those reported by Gaucher and Salin, Hazen and Rost, syphilis was thought to be the underlying factor, but in none of Dr. Heiman's cases was there any history or evidence of that disease. Of the three cardinal symptoms of exophthalmic goitre—tachycardia, exophthalmos, and enlargement of the thyroid gland—Barret states that tachycardia is the first to develop in children. The exophthalmos is usually less marked in children than in adults, though it is rarely missing. In Barret's series it was absent in only eight cases. The basal metabolism test, which is the most important diagnostic guide, was performed in Dr. Heiman's cases, and showed that the degree of severity of the symptoms and signs corresponded with the degree of elevation of the metabolism rate, the results before treatment being in the first case 12 per cent., in the second case 20 per cent., and in the third case 52 per cent. Dr. Heiman maintains that the most rational treatment of exophthalmic goitre is, first, a regimen of strict physical and psychical rest for a period of 6–10 weeks. If the patient then shows no improvement a short stage of X ray treatment should be employed. If there is then no response, thyroidectomy should be performed. Considerable improvement took place in one of Dr. Heiman's cases in which partial thyroidectomy was carried out. In the other two cases, in which rest was the only treatment, the improvement was less striking.

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[1] Amer. Jour. of Diseases of Children, September, 1923.

THE CAUSATION OF THIRST.

THE sensation of thirst, so familiar yet vague and elusive, has often aroused the curiosity of the investigator, and at least two theories are current to explain its origin. Thirst might be due primarily to loss of water from the tissues in general, the actual sensation being a secondary local reference to the pharynx; or it might be a consequence simply of loss of water from the mucosa of the mouth and pharynx, and independent of the general state of the tissues. Some well-known facts point to the one theory and some to the other. Thus, the rapidity with which thirst is quenched by drinking water or by such devices as the sucking of a lemon, or the antidipsic button used by soldiers in arid climates, both of which promote a flow of saliva, point to the local desiccation theory; so does the thirst familiar to the nervous orator, or that engendered by atropin. An experimental investigation by G. T. Pack,[1] of Yale, gives further support to this view. He sought to learn whether pilocarpine, by promoting a flow of saliva, exerted an antidipsic effect, and found that it did. Rabbits deprived of water for a sufficient period were offered water for a certain length of time and the amount consumed was noted. Similar rabbits treated with pilocarpine took much less water even in double the time; yet the general desiccation of the tissues would probably, if anything, have been greater after pilocarpine than before, on account of the flow of digestive juices.

While all these facts seems to be arrayed in favour of the local desiccation theory of the origin of thirst, there is a not inconsiderable body of evidence in favour of the general tissue-desiccation theory. For instance, thirst can be allayed or prevented by intravenous or rectal injections, or by the administration of water by a stomach tube. Again, the thirst of diabetes or of chronic polyuria is not assuaged by pilocarpine. Mere wetness or dryness of the mucosa of the mouth and pharynx is therefore not the only factor. Pack's rabbits, although they took less water in a given time with than without pilocarpine, nevertheless frequently took *some* water; thirst was reduced but not abolished. A compromise between the two views would be not unreasonable. Local drying apparently always produces thirst; local drying would obviously be greatly accelerated and would reach the sensation-point sooner if there was a generalised desiccation; sensations arise first from the pharynx because, though normally moist, its opportunities for drying are greater than in other mucous membranes, owing to its forming part of the respiratory tract, and possibly also being endowed with special end-organs sensitive to drying.

THE LISTER WARD IN THE ROYAL INFIRMARY OF GLASGOW.

CONSIDERABLE feeling has been aroused both in and beyond Glasgow by the recent decision of the managers of the Royal Infirmary to demolish the Lister Ward, the workshop in which that great surgeon evolved his antiseptic treatment of wounds. The ward forms part of the old Lister block, which was left intact in the precincts of the present Infirmary when the plans were published in 1907, and it stands some 60 feet from the new building. The entire block has been condemned, but public sentiment finds expression in a petition, already signed by large numbers among the medical profession and the laity alike, that at least the first storey—the Lister Ward—should be retained as a memorial of one to whose fame Glasgow is proud to have contributed. The reason for the managers' decision appears to be three-fold: that the ward is not suited to modern requirements of surgery, that the space occupied is essential for light and air, and that to retain the ward would affect the symmetry of the Infirmary forecourt. To these utilitarian, hygienic, and æsthetic grounds for total demolition is added the cost of reconstructing the ward when the upper storeys are removed. All four arguments are ably disposed of by Mr. James A. Morris, F.R.I.B.A., in his pamphlet entitled, "A Humble Plea for the Retention of the Famous Lister Ward in the Royal Infirmary, Glasgow."[1] On the purely technical side of these questions expert advice must prevail, but the main issue at stake in the public mind is one which has again and again been a matter of controversy in recent years, and which amounts to this: is it justifiable in present-day circumstances to sacrifice a part (however small) of a modern conception to sentiment, and to honour a great pioneer of progress by an act of conservatism? If the continued use of the ward should in any way impair any patient's chances of recovery, then to protest against its demolition would be folly; but it was those who had the most direct interest in the well-being of their patients—the medical staff of the Infirmary—who were the first to sign a petition pleading for the retention of the ward. Surely, then, even at a small financial outlay, and, it may be, at the expense of the hypersensitive æsthetic taste of a few, it is justifiable—nay more, it is a civic duty, to preserve this historic battlefield in the age-long fight against disease, as an inspiration for those who follow after.

THE LONDON SCHOOL OF DERMATOLOGY.

FOR a long time it has been realised that dermatology in London has suffered from want of concentration and combined effort. Each of the large London hospitals has its dermatological department, for which, as a rule, one physician alone is responsible. St. John's Hospital for Diseases of the Skin provides a centre where there is ample material, and where there are also considerable facilities for concerted teaching, but up till now these various interests have been working independently. During the last few months negotiations have been proceeding between the medical staff of St. John's Hospital and other

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[1] Amer. Jour. Physiol., 1923, lxv., 346.

[1] Glasgow: Maclehose, Jackson and Co. 6*d*.

London dermatologists with a view to further developing the existing facilities at St. John's, and combining to establish a central school for the study of diseases of the skin where the teaching of clinical dermatology and cutaneous pathology could be obtained. A scheme has now been adopted which has received the unanimous approval of all those concerned, and which has been sanctioned by the board of management of St. John's Hospital. The essential points of the scheme are that to the existing staff of St. John's Hospital additional members should be appointed, both active and consulting. The consultants are Sir Malcolm Morris and Dr. James H. Stowers, while to the acting staff there have been elected Dr. Wilfrid Fox, dermatological physician to St. George's Hospital, and Dr. Henry MacCormac, dermatological physician to the Middlesex Hospital. Dr. J. M. H. MacLeod will be director of the Pathological Department, Dr. Wilfrid Fox will be responsible for the V.D. Department, and Sir Malcolm Morris and Dr. J. H. Stowers will each have a seat on the board of management.

The London School of Dermatology will have an intimate connexion with St. John's Hospital, where all the teaching will be carried out, but the management, though working in close association with the medical committee of the hospital, will actually be in the hands of a larger body, consisting of the medical staff, both consulting and active, of St. John's Hospital, together with the physicians in charge of the dermatological departments of the 12 metropolitan hospitals with undergraduate medical school attached. We wish the movement all prosperity.

THE Harveian Oration will be delivered at the Royal College of Physicians of London by Prof. E. H. Starling, C.M.G., F.R.S., next Thursday, Oct. 18th, at 4 P.M.

THE Honorary Fellowship of the American College of Surgeons is to be conferred on Sir W. I. de Courcy Wheeler, President of the Royal College of Surgeons in Ireland, who has accepted the invitation of the Regents of the College to deliver the Fellowship address at the Clinical Congress in Chicago on Oct. 26th.

A SOCIAL evening will be held at the House of the Royal Society of Medicine on Tuesday, Oct. 30th, at 8.30 P.M., when the President will present the Gold Medal of the Society to Dr. Gowland Hopkins, F.R.S., professor of biochemistry at the University of Cambridge. At 9 P.M. Prof. Hopkins will deliver an address entitled Stimulants of Growth.

The Services.

Col. C. H. Bowle-Evans, Ind. Med. Serv., is appointed Hon. Physician to The King, Ind. Mil. Forces, vice Maj.-Gen. Sir William R. Edwards, I.M.S., ret.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majs. to be Lt.-Cols: Bt. Lt.-Col. A. W. Gibson, vice Lt.-Col. R. F. Ellery, ret. pay. R. N. Hunt, vice Lt.-Col. F. J. Palmer, ret. pay.

Maj. A. C. H. Gray relinquishes the temp. rank of Lt.-Col.

TERRITORIAL ARMY.

Capts. C. H. Carlton and J. Wallace to be Majs. (prov.).

Lieut. F. G. Hobson resigns his commn. and is granted the rank of Maj.

TERRITORIAL ARMY RESERVE.

Col. Sir C. A. Ballance, having attained the age limit, is retd., and retains the rank of Col.

Maj. W. T. Blackledge, having attained the age limit, is retd. and is granted the rank of Lt.-Col., with permission to wear the prescribed uniform.

ROYAL AIR FORCE.

Flying Officer J. D. Leahy is promoted to the rank of Flight Lt.

INDIAN MEDICAL SERVICE.

A. H. Craig to be Capt.

G. H. FitzGerald to be Lt.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XL.—THE MEDICAL TREATMENT OF EARLY OR SUSPECTED DUODENAL ULCER.

THE most essential factor for success in the medical treatment of duodenal ulcer is an early diagnosis. The clinical syndrome in the majority of cases is fortunately better defined than in gastric ulcer, or in any of the other organic dyspepsias, and often justifies a positive opinion. Nevertheless, whenever possible confirmation by radiography, gastric analysis, and examination of the stools for the presence of occult blood should be obtained. Lacking these, response to appropriate treatment may itself confirm a suspicion. It must be accepted that there is no accurate correlation between the clinical and pathological duration of an ulcer. Since, however, the majority of sufferers presenting themselves for investigation in hospital or clinic have had characteristic symptoms for months rather than weeks, and often for years, it seems reasonable to suppose that recognition at an earlier stage is commonly within the bounds of possibility. The importance of early diagnosis is well borne out in a recent paper by Nielsen.[1] Regarding as "cured" those patients who had remained entirely free from gastric symptoms up to or beyond two and a half years from their discharge from hospital, he obtained the following figures in a series of 182 cases. Diagnosis was confirmed by hæmorrhage, radiographic findings, or operation.

(A) Duration of symptoms before treatment.
(B) Percentage cured.

(A)	(B)	(A)	(B)
Less than ½ a year	60	3 to 5 years	20
½ to 1 year	54·1	5 to 10 ,, ...	10·8
1 to 3 years	36·9	Over 10 ,, ...	5·3

In reviewing these figures it should be noted (1) that they include cases of gastric as well as duodenal ulcer, and that a high proportion were in "older and fairly severe cases"; and (2) that the regime, as described, was very much less strict than the regimes in vogue in this country and America, and did not include certain items which we should regard as essential. With wise selection of cases, a diagnosis within the first three months of symptoms, and a carefully planned initial regime and after-treatment, a higher recovery rate than 60 per cent. should certainly be obtained.

Selection of Cases.

Young subjects are more responsive to treatment than those in the later decades. During and after middle life medical treatment should never be instituted without a thorough investigation, for occasionally an early carcinomatous ulcer of the pylorus may simulate a duodenal ulcer. Hæmatemesis or melæna occurs in a very small proportion of cases, and the treatment of hæmorrhage will not be considered here. It should, however, almost always be medical in the first instance, and in young subjects should be medical throughout. When hæmorrhage is the first symptom the outlook is frequently favourable. The treatment outlined hereunder is such as might be prescribed for a man between the ages of 18 and 40 years, convalescent from the immediate effects of a first hæmorrhage; giving a short history of uncomplicated duodenal ulcer dyspepsia; or a longer or relapsing history lacking previous adequate treatment and radiographic evidences of gross scarring.

The Aims and Details of Medical Treatment.

These do not differ from the aims of surgery. They are: (1) To secure the optimum rest for the stomach as a whole, and for the pyloric sphincter and ulcer-bearing area in particular. (2) The inhibition or neutralisation of excessive acid secretion, with a view to minimising the "acid control" of the pylorus and giving "chemical rest" to the ulcer. (3) As a preliminary to these, the eradication of focal sepsis.

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[1] N. Aage Nielsen: Acta Medica Scandinavica, lviii., i., 1923.

Rest and Warmth.—Gastric rest is primarily obtained by general physical rest. With lowered activity on the part of the whole body food requirements are diminished, and the peristaltic and tonic activity of the stomach, subjectively expressed by hunger and appetite, are simultaneously decreased. In a similar way warmth also discourages excessive motility. The patient should therefore be put to bed in a warm room and with warm clothing, and only allowed up for visits to bath or lavatory.

Diet.—Gastric rest is encouraged by a diet which calls for the least possible motor and secretory activity, and is not calculated to cause distension. The proteins, being the only foodstuffs undergoing an important phase of their mechanical and chemical digestion in the stomach, must as far as possible be excluded. Even to milk there is the objection that its protein element creates a specific response. Thus a pint of milk is capable of producing definitely higher curves both of free and total acidity and a more prolonged gastric phase, as determined by fractional analysis, than a pint of standard gruel.[2] In practice, however, it is so inconvenient to dispense with milk that it forms a part of all ulcer dietaries, and its fluid nature and nutritional value help to outweigh the disadvantages. The soft farinaceous foods are theoretically and practically appropriate; they do not require gastric digestion or stimulate a high acidity. Fats and oils possess the important faculty of causing some actual inhibition of acid secretion; they are also lubricant and of high calorie value.

To avoid distension of the stomach small feeds must be given. To avoid the pyloric hypertonus, which results when the stomach is empty and unopposed "acid-control" established, the feeds must be given often. Eight feeds in the day at 8 and 10 A.M., 12 noon, and 2, 4, 6, 8, and 10 P.M. is a convenient distribution, though in the Sippy and similar regimes smaller and more frequent feeds are preferred. An additional feed in a thermos flask should be handy in case the patient wakes at night. The dietary may include: Benger's food, gruel made with refined oatmeal, ground rice, semolina, arrowroot, cornflour, malted milk, cream (4 to 6 oz. daily), milk (2 to 2½ pints daily), sugar or lactose, and the juice of a sweet orange or grape-juice. In addition an occasional rusk may be given to encourage the flow of saliva, to keep the mouth clean, and to provide the pleasure of mastication. No feed should exceed half a pint in bulk, and unless the patient complains of hunger they should usually be of smaller amount—say, 6 to 8 oz. The milk can be given mainly in conjunction with the farinaceous foods; when taken alone 15 gr. of sodium citrate should be added to each feed. This regime should be followed for two weeks, and then supplemented by the addition of two eggs lightly boiled, poached, or beaten up. In the fourth or fifth week two more eggs, scrambled or boiled, thin bread-and-butter without crust, custards, fruit-jellies, Force, or Cornflakes may be added. In cases with "duodenal hurry" more frequent feeds may be necessary, but very small feeds in these cases sometimes fail to achieve relief of pain. Smoking should be prohibited. After the first fortnight there should be a gradual gain in weight, and at no point should there be appreciable loss.

Medicines.—Belladonna is probably the most useful drug in the treatment of duodenal ulcer. It should be given in 5-minim doses a quarter of an hour before every alternate feed, and may be administered in conjunction with emulsion of magnesia (B.P.C.) 1 drachm to 1½ drachms. If dryness of the mouth or visual disturbance becomes troublesome three instead of four doses in the day may be given with 2 drachms of the magnesia emulsion. The action of belladonna is antispasmodic and antisecretory. It has been shown to modify the fractional test-meal curve more efficiently than alkalies, probably by causing relaxation of the pylorus and permitting duodenal reflux. Alternating with the belladonna, and again at an interval of a quarter of an hour before feeds, one tablespoonful of the best olive oil is given. Midway between feeds, when the acidity is likely to be highest, and again at bed-time, bismuth oxycarb., gr. 15, should be taken. If night pain has been troublesome a hypodermic injection of atropine, gr. 1/100, at bed-time may also be given in the early stages. For constipation liquid paraffin is generally satisfactory, but salts or enemata may be required.

Eradication of Sepsis.—Dental or tonsillar sepsis should be radically dealt with before the intensive treatment is started, and careful attention must be paid to the hygiene of the mouth throughout. If possible radiograms of the teeth should be taken. Occasionally it may be necessary to advise removal of an infected appendix. By consultation between physician and surgeon at the time of operation the desirability of medical or surgical treatment may then be assessed after actual inspection of the ulcer.

Duration of Intensive Treatment.

This should seldom be less than six weeks and never less than a month. The treatment should in all cases continue until (1) there has been no complaint of spontaneous pain for at least three weeks; (2) all reflex signs, such as "guarding" or increased abdominal reflex on the right, and deep tenderness, have disappeared; (3) the stools are found to be free from occult blood on three occasions. The benzidin test for occult blood gives sufficiently reliable results for practical purposes.

After-treatment.

This is almost as important as the intensive phase. When possible the patient should be sent for a holiday. During this period he should follow out the same rules, but allow himself greater liberality in the amounts of food consumed, and instead of staying in bed should rest after meals for one hour. He may cut down the number of feeds to six per diem while increasing their bulk; thus by introducing an extra middle-morning feed and a bed-time feed he can conform with the ordinary meal-times of the household. Potatoes mashed with butter and puréed vegetables may be added to his diet. At the end of two weeks' holiday a little cold boiled bacon or sardines may be taken with breakfast, and steamed or boiled fish with lunch or supper. The olive oil and belladonna should be continued. For the next three months the same principles should be followed with gradually increasing variety in the meals. These should still be made up as far as possible with milk, cream, butter, fats, and farinaceous foods, but with the addition once a day of fish or fowl. After three months a return to normal life and dietary is permissible, but with the following restrictions, which should be observed rigidly for a year and as closely as possible thereafter.

Hunger must be particularly avoided, and for this purpose biscuits or milk chocolate should be carried in the pocket and a night feed provided in case of waking. Physical and mental overstress and mental activity at meal-times must be avoided so far as circumstances permit. Smoking must be moderate and only "on a full stomach." Irritating particles such as seeds, skins, nuts, and vegetable fibre must be eschewed. Condiments, meat-soups, mustard, pepper, spirits, and salted or twice-cooked meats must be avoided altogether. Meals must be taken slowly and chewed thoroughly. The dentist must be visited regularly twice a year. Fats and farinaceous foods should still be preferred, and olive oil, or in winter a cod-liver oil preparation, taken with breakfast and the evening meal.

The treatment outlined above is not intended as a "stock" treatment applicable in every case of duodenal ulcer, for in no condition is it more essential to study clinical and personal peculiarities. It is sufficiently simple to allow of its employment in the patient's own home, and without the supervision of a trained nurse.

John A. Ryle, M.D. Lond., M.R.C.P.,
Assistant Physician to Guy's Hospital.

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[2] J. A. Ryle: Guy's Hospital Reports, lxxi., 2, 1921.

Special Articles.

THE FUTURE OF DRUG THERAPY.*

BY W. E. DIXON, M.D. LOND., F.R.S.,
READER IN PHARMACOLOGY AND ASSESSOR TO THE REGIUS PROFESSOR OF MEDICINE, CAMBRIDGE.

THE Pharmaceutical Society of Great Britain has done so much to advance the study of pharmacy and pharmaceutical chemistry in this country in a short period, for its charter only dates from 1843, and can look back on such a phenomenal record of progress and success entirely as the result of its own exertions without Government or outside assistance, that it is well you should recognise that your President and Council are not altogether infallible, as they have shown by doing me the honour to invite me to address you to-day, although I possess no special knowledge of the art and science of pharmacy.

Materia medica is the most ancient of all medical studies and credulity in the virtues and curative powers of drugs the most inherent of all human creeds. Medicine was once nothing but a system of recipes and rituals devised to combat the symptoms of disease. With the birth of science and more particularly with the growth of pathology some insight was obtained into the nature of disease; it was material, it caused grave bodily changes, and it caused physicians to lose hope in the efficacy of drugs. Treatment assumed an insignificant position, the old shibboleths and traditions of ages were discarded. Skoda, the founder of scientific diagnosis, who exercised wide influence in the nineteenth century, was the strongest advocate of therapeutic nihilism and carried his views to the extreme limit. The more scientific part of the medical profession slowly followed in the wake. Treatment passed out of fashion and all thought and research in medicine was centred on diagnosis and pathology. All this was perhaps to the good, the recipes and formulæ, the tradition of generations, were gradually interred, but there was nothing with which to replace them, and the public left to itself was at the mercy of "systems of treatment" and the prey of the vendors of "cure-alls."

The Science of Treatment.

The science of treatment is the newest of the biological sciences; it is dependent on chemistry, physiology, and pathology, and could only come into existence when these sciences had attained some degree of completeness. So far have the views of Skoda become a part of the past that Prof. Ehrlich, for many years the director of the Institute of Experimental Therapeutics in Frankfort, in the opening sentence of an address he gave in this country, said, "There can be no doubt that the three great fields of knowledge, pharmacology, toxicology, and therapeutics in their theoretical and practical aspects form the most important branches of medicine."

I desire to give you some reasons for believing that treatment by drugs is as yet only in its infancy, and to offer you, therefore, every encouragement in the profession you are adopting, which I believe has a bright future, and regarding it in its broadest sense unlimited possibilities. The discovery of diphtheria toxin as a curative treatment opened up a great vista of the possibilities of serum therapy in the future, but this hope has not been fulfilled, and in spite of the fact that perhaps the best brains in medicine have been engaged in this field of research for more than a quarter of a century; diphtheria antitoxin remains to-day almost unique in being the only serum of proven therapeutic value in the treatment of disease in this country. During this period pharmacy appears to me to have taken little heed of this new trend of medical thought, the search for specific sera, and her disciples have continued their labours under the old conditions. Perhaps pharmacy was right, for it is only to-day that the medical profession is beginning to awake to the fact that they have been following a side issue. One would have imagined that the great progress in surgery which was only rendered possible by understanding the use and action of drugs—I refer, of course, to anæsthetics and antiseptics—would have suggested the possibilities and future of drug therapy, but such was not the case.

Our whole outlook on treatment has been altered by recent and gradually accumulated knowledge that the animal body elaborates its own drugs, stores them generally at the seat of formation, and doles them out to the tissues to meet the needs of the animal economy. Some of these are crystalline alkaloids, like adrenalin from the suprarenal capsules, and thyroxine from the thyroid gland. Others, like insulin and pituitrin, have yet to be prepared in a pure form, but we know that the former changes glucose in some way so that its oxidation can be continued by other processes in the body, and that its absence results in an excess of sugar accumulation in the blood, a condition termed diabetes; pituitrin, I have reasons for believing, is the chemical agent in the normal woman which causes the uterus to contract. Ovarian activity excites the pituitary gland and determines the liberation of pituitrin into the circulation, and it is well recognised that its use in obstetrics has largely superseded that of ergot. I cannot offer a more convincing example of the inner meaning of drug actions. The normal functions of the body are regulated at least partly by these natural drugs, and it may be that all functionings are of this nature and the object of a nerve-supply is to localise the liberation of the drug in some definite situation. Obviously, then, animal products have assumed once again a great importance in pharmacy and pharmaceutical chemistry, such an importance indeed that some knowledge of animal anatomy and physiology is almost an essential to the educated pharmacist of to-day, and I have little doubt that before long it will form a not unimportant part of your curriculum. These examples, however, only refer to internal factors as a cause of disease; and there are few organs or tissues of which it is not possible to increase or diminish the activity by the use of drugs.

Drug Treatment in the Cure of Disease.

We may now consider how far drug treatment has advanced in the cure of disease due to the introduction into the body of some extraneous factor. In several instances, especially in the protozoa, it is possible to destroy the causal agent of a disease by drugs; the disease is cured but, curiously enough, the action is not necessarily brought about by the direct effect of the drug on the causal agent. The organic compounds of arsenic have no decided effect on the spirochætes of syphilis in the test-tube, but they destroy them in the body; emetine, an alkaloid from ipecacuanha, does not kill the amœba of tropical dysentery except in the human body. The Bayer Laboratory have lately introduced a derivative of trypan-blue which destroys trypanosomes in the body of both men and animals; what this means may not be immediately appreciated; it is nothing less than the opening up of immense tracts of tropical Africa now prohibited by sleeping sickness in man and the bite of the tsetse-fly (nagana) in animals.

It is true that chemists and pharmacologists have as yet made little progress in their attack on bacterial diseases such as tuberculosis, but the fact that one of the quinine derivatives, ethylhydrocuprein, administered to man in appropriate doses, destroys the micro-organisms causing pneumonia is a happy augury even in this field. Most of these new drugs and cures have in the past emanated from Germany, because in that country the opportunity for studying higher chemistry has been open to almost all, and Germany early recognised that new discoveries meant new industries and increased wealth; with them to foster research was a business proposition, not a charitable ideal. With us research has been left to the individual, but the Pharmaceutical Society has shown originality and done much to further investigations in its special sphere, and incidentally to raise the status of English pharmacy.

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* An address delivered at the opening of the session of the School of Pharmacy on Oct. 3rd.

How Drugs Work.

I propose now to consider how these drugs which are swallowed and injected so plentifully produce an action on the body tissues. It has, for example, been imagined that they combined chemically with some constituent or complicated "side chain" in the living cell, and for 50 years chemists have been trying to change the molecule of well-known chemical substances so as to produce some required action—that is to say, that the chemical constitution of a drug determined its action in the body. It is probable that subtle energy factors binding the molecule, factors not displayed in a chemical formula, control the pharmacological action: certain it is that drug action is not determined directly by chemical combination with body constituents, but rather by delicate physical processes such as those of absorption, solution, and surface-tension. Chemists have not yet determined the requirements of the molecule even for the production of colour. On the other hand, slight alterations of a molecule already complicated and with a known pharmacological action have led to the production of many useful compounds, and not infrequently, under such special conditions, we may foresee the type of action which will accrue by such alterations. Such conditions have led to the synthesis of the new local anæsthetics, antiseptics, antipyretics, diuretics, tropeines, and many others.

I may briefly state some of the factors which chemists and pharmacologists must appreciate in seeking an explanation of drug actions. At the outset we are met by difficulties, as we know so little of what determines absorption through living membranes. Why is common salt absorbed so readily into the blood and why are Epsom salts not absorbed? It is well that they are not, for a very few grains of Epsom salt make a fatal dose. Why should iron be absorbed with such difficulty and arsenic with such ease? All these are physico-chemical problems which await solution. As the drug passes through a living membrane or cell there is for a time some difference in tension on the two sides, and this passage of the drug in itself produces an action. One of the first effects of inhaling a little chloroform is to cause the bronchiolar muscle to contract; the contraction continues until the two sides of the membrane show an equal saturation of chloroform. Similarly any passage of a foreign substance into the pericardium produces an effect on the heart, the result of the alteration in tension on the two sides of the cell membrane. A wineglassful of 30 per cent. alcohol produces an effect in five minutes which we may call exhilaration, but the effect is transient, lasting half an hour or less, and so soon as absorption is complete ceases, though the percentage of alcohol in the nerve cells does not reach its maximum till about half an hour: this effect is due to the passage of alcohol into the nerve cells, and is not a specific effect of alcohol.

Drugs may act not by any particular action on living matter, but because they collect in such quantities in living cells as to clog the working of the machine. The vast group of hypnotic drugs differing widely in their chemistry have one common factor, the power of diffusion into living cells, comparative insolubility in water, and a greater solubility in fat and fat-like compounds. Lecithin and cholesterin are the principal fat-like bodies of animal tissues, and these are present especially in nerve structures. The drug will thus pass into the nerve cells, and change the physical conditions, thus interfering with the activity of the cells. So that the most powerful hypnotics are those which combine a very slight solubility in water with a very high solubility in olive oil or "brain lipoid." It is not, however, a general rule that drugs which exert a selective action on some tissue tend to collect in that tissue: strychnine does not collect in the spinal cord nor morphine in the brain: exceptions there are, such as the members of the great group of hypnotics, and the active glucosides in foxglove leaves, which are picked up from the circulation almost entirely by the heart.

Adsorption or the concentration of soluble substances on surfaces accounts for the action of some drugs. Thus if diphtheria toxin in salt solution is filtered through bone-black the toxin becomes adsorbed to the charcoal. The toxin of the cholera vibrio is similarly adsorbed by kaolin, and as the cholera infection is confined, at least in its early stages, to the alimentary canal, it is not perhaps remarkable that we should have in this insoluble inert powder kaolin a substance which is almost a specific in the treatment of this disease.

The characteristics of old age are in many cases, if not all, the results of poisoning by the absorption of toxic substances from the alimentary canal. These poisons may be produced by the growth of micro-organisms, and it was for this reason that Metchnikoff introduced his Bulgarian bacillus, which grows freely on milk and liberates acid: this infected milk, when taken in large quantities, was supposed to liberate enough acid in the alimentary canal to destroy or limit the growth of other organisms, and so prevent the formation of toxins and the onset of old age. Disinfectants have so far been ineffectual to diminish materially the intestinal flora—they poison the body before the bacteria; it may be that more happy results will accrue by using the principle of adsorption. Surface-tension again certainly explains the action of some substances, and osmosis is the principal factor concerned in the action of the saline purgatives and diuretics. Fashions in medicine and pharmacy we have always with us—for example, the modern prevalence of vaccines and perhaps the use of metallic colloids. Colloids are still on their trial, but the metallic colloids possess some remarkable properties resembling ferments: thus metallic rhodium splits up formic acid to hydrogen and carbon dioxide, and a solution of metallic platinum containing only 1/300,000 mgm. per c.cm. splits up hydrogen peroxide into water and oxygen. How far the properties of colloids can be made use of in medicine has yet to be decided.

Conclusion.

I have endeavoured to show that the future of curative treatment lies in drugs, and that the discovery of new drugs or methods of treatment can only be attained by those who have had the requisite scientific training. You cannot all, however, become wedded to science, and many of you will no doubt become retail pharmacists, and here to be really successful something more than accurate knowledge and the art of dispensing is required. Sympathy, understanding, a knowledge of life and men are of inestimable value. Suggestion is sometimes more than half the battle in the treatment of the sick, and the patient who sees his own medicine being accurately dispensed derives comfort and benefit from the ritual of the dispensing and perhaps the cheering words of the dispenser. Some years ago the late Dr. W. H. Rivers and I performed some experiments on men, estimating the amount of work certain muscles could perform under fixed conditions, in order subsequently to determine the influence of drugs. The experiments so performed were useless, since we found that any drug greatly increased the man's work. The drug day was all-important, and work was always greater on that day; the influence of suggestion was greater than the influence of the drug.

You who are entering a new profession to-day may justly be proud of your school, with its list of eminent professors, past and present, your museums, library, and laboratories, and of the Society under whose auspices you will be educated, and which has done much to raise the status of pharmacy. The researches done in these walls have of themselves opened new chapters in chemistry and pharmacy, and the publication of the great and authoritative work, the Codex, every monograph in which constitutes an investigation in itself, is but one milestone in its history.

THE REMUNERATION OF INSURANCE PRACTITIONERS.

1. THE OFFER OF THE MINISTER OF HEALTH.

THE following letter has been received by the Medical Secretary of the British Medical Association from the First Secretary of the Ministry of Health:—

SIR,—1. The Minister of Health, having given very careful consideration to the memorandum submitted by the Insurance Acts Committee in August, and to the representations made by the deputation on the 2nd instant, and having conferred on the matter with representatives of the approved societies operating in Great Britain, is now enabled to state the conclusion he has formed as to the general capitation rate which should be prescribed for the calculation of the remuneration of insurance practitioners in England and Wales, after Dec. 31st of this year, and as to the period for which that rate should remain in force.

2. At the outset it is desired to make clear that the Minister accepts unreservedly the view of the Committee that the rewards of medical practice should be such as to attract the right type of recruit to the profession, and that the remuneration of insurance practice should not compare unfavourably with that derived from private general practice of a fairly comparable kind—it being assumed that in any such comparison with private practice due account is taken of all relevant factors including, for example, the advantages of payment at a contract rate, which obviates the risks of bad debts and relieves the practitioner of the labour and expense involved in the preparation and collection of accounts.

3. In these circumstances it is unnecessary for the purpose of this communication to enter into any detailed examination of the actuarial questions raised from the latter part of paragraph 3 of the Committee's memorandum, which would be relevant only if it were sought to justify an offer on the ground that it constituted the maximum change which the available funds would bear. Nevertheless, to avoid misconstruction, it must be stated definitely that the Minister does not accept as accurate the statements contained in that paragraph. The Committee are under a complete misapprehension in supposing that the difference between the total receipts and the total payments for benefit and administration is in any sense a "surplus." It is true that at present the contributions provide more than is necessary to meet the current charges, but the liabilities under National Health Insurance increase with the ages of the insured persons and large reserves will ultimately be required to enable the claims to be met. If these reserves are accumulating more rapidly than is necessary, a surplus will be disclosed as a result of the actuarial valuation now in progress, but it must be stated that the amount of that real surplus will be so widely different from the sum which the Committee seem to have in mind as fundamentally to effect any conclusions which might otherwise be drawn from the figures given in paragraph 3 of the Committee's memorandum.

4. In deciding as to the rate now to be offered the governing consideration with the Minister has been that it should—in the language used by the then Minister in the negotiations preceding the 1920 arbitration—represent a fair remuneration, in the circumstances of the period during which it is to be in force, for the professional work involved in giving adequate attendance and treatment to insured persons under the proposed conditions of service. The case put forward by the Committee in support of a rate of not less than 9*s.* 6*d.* and possibly as much as 10*s.* 9*d.* has been examined from this point of view.

5. With reference to paragraph 4 of the Committee's memorandum, which raises the question whether the capitation rate accepted by the profession in 1913 was or was not adequate, the Minister could not agree that any difficulty in the early years of national health insurance in obtaining the services everywhere of an adequate number of practitioners was in the main due to financial considerations. If, however, or in so far as the Committee desire to base their claim now on any alleged inadequacy in the 1913 settlement, it must be pointed out that, whatever may then have been or may still be the views of the profession, there was and is a strong body of opinion among those outside the profession most conversant with the facts that the terms conceded by the Government of the day were exceedingly favourable to the doctors.

6. The Minister agrees that in the determination of a fair capitation rate some regard must be had to the award of the arbitrators in 1920. But he cannot wholly ignore the fact that the arbitration took place at a period of optimism and inflation, when increases of remuneration were being conceded very liberally on all hands, and the consequent probability that had the arbitration been held in the different atmosphere of a year later the result might have been relatively less favourable to the profession. Moreover, a consideration had then to be taken into account to which the Insurance Acts Committee drew attention—namely, the temporary enhancement of the earning power of the medical profession on account of the shortage of doctors produced by the war. It will hardly be contended that this consideration now applies in anything like the same degree.

7. While admitting that the 1920 award must be taken as one of the factors of calculation, the Minister cannot accept the contention of the Committee that he is stopped from taking into account the reduction two years later to 9*s.* 6*d.* on the ground that the acceptance of this reduction was urged by the then Minister of Health on grounds of patriotism and national economy. The Minister fully appreciates the recognition of national necessities manifested by the profession in the spirit in which they accepted a reduction of remuneration which they may not at the time have been convinced was economically justified. But it is possible now to apply an ordinary economic criterion to that rate by ascertaining what effect, if any, the reduction in the rate in fact appears to have had on the total number of doctors accepting service. Had the new rate been appreciably below the current remuneration obtainable in private practice—i.e., had it been in any true sense inadequate—it must have failed to attract new recruits to the panel and the dissatisfaction of individuals would undoubtedly have been reflected in a progressive diminution of the total number under agreement. In fact, however, no such diminution was observed. During the last quarter of 1921, when the negotiations were in progress, the total number of practitioners under contract with committees in England remained stationary, but in the first quarter of 1922, when the reduced rate became operative, the total for England increased by no less than 128, a figure appreciably in excess of the normal quarterly addition. In Wales for this period the total remained stationary. In the 18 months from January, 1922, to July, 1923, the increase for England and Wales was 552, and as this is a net figure after making good wastage by deaths and resignations, the actual number of new entrants was considerably larger. For Scotland the number of insurance practitioners was in 1920, 1706; in 1921, 1713; in 1922, 1769; and in August, 1923, 1770. It is significant also that in the advertisements of practices for sale the size of the panel has continued to be almost invariably mentioned as an inducement to purchase.

8. Underlying the succeeding paragraphs of the Committee's case appears to be an assumption that doctors are entitled to such remuneration as will secure them against any lowering of their pre-war standard of living beyond that entailed by increased taxation. This assumption the Minister is unable to accept, and he doubts whether it is really intended, since in the opening paragraph of their memorandum the Committee recognise that the necessity for every reasonable economy, both public and private, is still evident, and state that the medical profession does not expect to escape the effects of this financial stringency. In the same and following paragraphs the Committee have also recognised, and indeed urged, the necessity of relating the remuneration offered for insurance practice to that which can be earned in private practice. But the possible earnings of the profession in private practice (as in other spheres of medical employment) must inevitably be affected by general economic causes, particularly the tendency of earnings among other professional classes which are recruited broadly from the same sections of the community. If there is a tendency for those earnings to fall to the extent of a reduction of the standard of living, the medical profession, not through any act of the Government, but through the operation of ordinary economic forces, must participate in the fall, unless collateral conditions apart from earnings happen to make recruitment for that profession less attractive than for other professions (of which there is no present indication), and this must affect consideration of the appropriate remuneration to be offered in insurance practice. Thus comparison with professional earnings in general is relevant to the present question, and the Minister is bound to take note of the fact that while some professions have been more successful than others in retaining temporary war increases, it is common knowledge that a very large section of the professional classes have as a result of the war suffered a reduction of their real income over and above that entailed by increased taxation.

9. Close comparison of the average remuneration of different professions is, however, necessarily a matter of extreme difficulty and from the nature of the case, in the Minister's opinion, the most appropriate comparison for the present purpose is with the Civil Service. In the case of professions remunerated on a scale rate fair comparison is practically impossible, since these rates represent not merely the remuneration of the principal, but an allowance for clerical and technical assistance of kinds, the cost of which has very greatly increased since the war. The extent to which post-war increases represent merely compensation

for increased working expenses cannot be ascertained, and even if there were any ascertainable relation between gross and net remuneration there is the further difficulty that these scale rates in many cases (e.g., in conveyancing or architecture) are a percentage of the total cost, which in turn has been subject to varying degrees of inflation since the war. Broadly speaking, the administrative section of the Civil Service (as distinguished from the merely clerical grades), and the higher ranks of the municipal services form the only large body of salaried professional men in whose case the ratio of post-war increase in remuneration is ascertainable with any exactness. The medical profession themselves recognised this when they based their claim in the later years of the war to a war bonus, and in 1919–20 to an increased capitation rate, largely on the war bonus which had been conceded to the Civil Service.

10. It is not suggested that a bonus based on the index figure reflects with any accuracy the incidence of the rise of prices on the expenditure of the professional classes. Without admitting the validity of Prof. Bowley's criticism of the index figure, it may be conceded that a more scientific method of adjustment would have been required if the object of the war bonus had been to place the higher ranks of the Civil Service in the same economic position—apart from the increase in taxation—as they were before the war. But the bonus was not designed to secure this, except in the case of the lower grades; and in its application to the administrative grade it represents the extent to which in the opinion of successive Governments, confirmed by Parliament, the financial exigencies of the country permitted of the effects of the rise of prices being mitigated in the case of the higher paid ranks of the public service. Whatever its theoretical defects this bonus has in fact been largely adopted by public and local authorities, as affording the most generous measure of relief consistent with the paramount obligation of national and local economy. Though insurance practitioners are not in the strict sense public servants, yet in so far as they are paid out of public or statutory funds their position is analogous to that of public servants, and the Government could not in equity to the insured persons, on whom directly or indirectly the charge for medical service falls, treat them differently, unless they were satisfied that a higher rate than such considerations, taken alone, would warrant was necessary to attract and retain general practitioners in the numbers and of the type requisite for the provision of an efficient service. On these grounds, therefore, the Minister is unable to accept the alternative basis suggested by Prof. Bowley, and he considers that the principle of the Civil Service bonus may properly be applied as affording a useful indication of the extent of the reduction in the present capitation rate which the profession may reasonably be asked to accept. Concerning, indeed, the part of the capitation rate that represents an allowance for practice expenses, which have fallen substantially as the Committee recognise, the application of the Civil Service analogy to the reduction of the practitioner's gross income is favourable to the profession.

11. In the 1920 arbitration the whole-time income of a general practitioner was taken for certain purposes of discussion at £1800 gross, and this may conveniently be taken for the present purpose. The arbitrator's award was given in March, and, on the scale of bonus, applied to Civil Service salaries for the period beginning with that month, this total remuneration corresponds to a basic salary of £1177. Since Sept. 1st, 1923, when the last adjustment of the war bonus took effect, the basic salary of £1177 has produced a total remuneration of £1411. If the 11*s.* capitation rate is reduced in the ratio of £1800 to £1411 the result is a figure of 8*s.* 7½*d.* The considerations mentioned in paragraphs 6 and 7 above suggest, however, that the more appropriate starting-point is not 11*s.* in 1920 but 9*s* 6*d.* in 1922. If an 11*s.* rate leads to an income of £1800 per annum the corresponding income on the basis of the 9*s.* 6*d.* rate is £1555. This income was produced in January, 1922, by basic Civil Service salary of £1156. This basic salary now produces an income of £1386.[*] If a capitation rate of 9*s.* 6*d.* is reduced in the ratio of £1555 to £1386 the result is a figure of 8*s.* 5½*d.*

12. An alternative method of calculation is to take the pre-war figure and adjust upwards. The actual pre-war capitation was 7*s.* plus the doctor's share of what is called the "floating sixpence." It has generally been assumed in discussing remuneration that this amount was on the average evenly divided between the chemist and the doctors, although in practice the apportionment varied considerably in different areas; and it is noted that in their memorandum the Committee take 7*s.* 3*d.* as an average pre-war figure. Assuming that the reasonable whole-time income of a general practitioner before the war was somewhere about £1200, the war bonus on the Civil Service basis would be an addition of about 18½ per cent., and on this basis the 7*s.* 3*d.* would become 8*s.* 7*d.* In considering these figures, it is to be borne in mind that the rate of bonus payable in the Civil Service for each period of six months is based on the average value of the cost of living figure for the preceding period of six months. The rates for the period from September, 1923, to February, 1924, are accordingly still affected by the higher values of the cost of living figure in March and April of the current year. It will be seen that all these bases of calculation produce converging results, which indicate that on the present level of prices there is a strong case for a substantial reduction of the present capitation rate of 9*s.* 6*d.*

13. The validity of the case put forward by the Committee—for the payment of a rate of not less than, or even more than, the 9*s.* 6*d.* at present in force—has also been tested by the second method employed in the 1920 arbitration. By reference, namely, to the number of attendances given under present-day conditions, affording an indication of the time occupied in attendance on any given number of insured persons, and thus a means of estimating the whole-time gross income to which a capitation rate may be considered roughly to correspond. A careful investigation has been made of the records of services rendered in 1922 by a number of practitioners in England and Wales selected as representatives of all types of practice, including both urban and rural, industrial and non-industrial, large practices and small. These investigations were limited to practitioners who were known to be keeping careful records, and the results covered 446 practices with aggregate total lists of 736,000 insured persons. The total number of records examined was 188,606, of which 122,931 related to men and 65,675 to women. A correction by way of addition has been made for the cards relating to persons who died after the end of the year 1922, and whose records were, therefore, not in the possession of practitioners at the time the examination was made. An addition has also been made in respect of cases of removal, since it appears that often the second doctor fails to make any record of attendances given before he receives the patient's card from the former doctor. Making a liberal allowance for these omissions the final figure shows that the average number of services rendered was slightly in excess of 3·5 per insured person. This means that a practitioner with 2000 insured persons on his list gave about 7000 services in the course of the year, which may be taken (as in the arguments before the arbitrators) as approximately 300 working days. On the average, therefore, the number of patients to be seen per working day was less than 24, and of this number at least two-thirds would attend at the surgery. In the case of men the actual ratio of visits to surgery attendances was as 98 to 227, and in the case of women the ratio was 66 to 232. If, therefore, for convenience the ratio for surgery attendances to visits is taken as being 2 to 1, it will be seen that this figure is distinctly favourable to the doctors. Thus the work entailed would be on the average about 16 surgery attendances and about eight visits per working day. Inquiry from experienced practitioners indicates that a practitioner giving this amount of attendance to insured persons would be able, without overwork, to devote at least as much time to private practice, an estimate which accords with the calculation submitted on behalf of the Government in the 1920 arbitration. Thus, assuming the private practice to be at least equally remunerative, a rate of only 9*s.*, yielding £900 per annum in respect of a list of 2000, may be taken as equivalent in the year 1922 to a whole-time gross income of £1800—the income named by the Insurance Acts Committee as offering a fair reward for the whole time of a general practitioner *in 1920*, allowing nothing for the fall in cost of living and practice expenses since that time.

14. Turning to the consideration of the allowance, if any, to be made in respect of contemplated changes in the conditions of service, the Minister appreciates the readiness which the Committee have shown in considering the suggestions which have been made by the Ministry and by the approved societies for the improvement of the service, and the value of the proposals which the profession themselves have made with the same object in view. He welcomes especially the growing recognition by the profession of the fact that the shortcomings of individual practitioners are prejudicial not only to their patients but to the efficiency of the service as a whole and to its status in the eyes of the public, and that provisions with a view to strengthening the checks on defaulters are desirable in the interest of the profession itself. The discussions of the conditions of

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[*] It may be pointed out that, if the gross income were assumed to be derived wholly from panel practice, this figure produces substantially the amount of total net income postulated in paragraph 10 of the Committee's memorandum—viz.:—

Gross income	£1386
Deduct practice expenses (24/156) as per paragraph 7 of memorandum	213
	£1173

service in the last nine months have resulted in agreed modifications which there is every reason to anticipate will materially enhance the efficiency of the service, and the Minister acknowledges with pleasure the value of the contributions made by the profession towards this achievement. But the proposed amendments of the Medical Benefit Regulations, valuable as they are, have been mainly directed to a better and less ambiguous definition of the content of the service, rather than to its extension. As the Committee recognise in paragraph 12 of their Memorandum, the only new obligation which involves any real extension of the scope of the service is in regard to the administration of an anæsthetic or the rendering of other assistance in an operation outside the contract; and having regard to the relative infrequency of such cases under existing conditions the additional obligation thus entailed does not appear to the Minister to be such as to justify an appreciable addition on this account to the capitation fee. Nor does he find in other changes proposed such an addition on balance to the demands on a practitioner's time and work as would call for any appreciable addition to the remuneration.

15. In paragraph 13 the Committee comment on the reduction of the sickness benefit claims since the commencement of the Act, and they suggest that this is in the main attributable to the provision of medical attendance for all insured persons. The improvement in the health of the industrial classes which has followed the establishment of a system of national insurance must be a cause of deep satisfaction to all. But the Minister must in fairness point out that expenditure on sickness benefit is the resultant of a number of factors the effect of which cannot be separately estimated. Improvements in the administrative methods of approved societies and economic causes have contributed too largely to the reduction in the cost of sickness benefit to make it a safe index of national health or of the efficiency of the medical service. This is illustrated by the marked reduction during the war period which was probably due mainly to the abnormal demand for labour and can hardly have been due to the efficiency of the medical service, since the shortage of doctors made the maintenance of even a minimum service a matter of extreme difficulty. In any case, however, the point which the Committee raised is only revelant to the question of remuneration in so far as it might be shown that the reduction in the incidence of duration of sickness has been secured or accompanied by increased demands on the time and energies of the doctors. In fact, there is no indication of this, and the examination of practitioners' records, to which reference has been made in a previous paragraph, indicates that the number of services rendered is lower now than it was found to be when the inquiry was made, the results of which were utilised in connexion with the 1920 arbitration.

16. As regards the difficulties of rural practitioners in sparsely populated areas in England and Wales, the Minister has only within the last fortnight received the suggestions of the Committee, and has not been able as yet to give them the consideration which they need. The action which he may find it necessary to take to meet these difficulties will not, however, in any case effect the determination of the general capitation rate, with which this communication is concerned.

17. Reviewing as a whole the case put before him by the Insurance Acts Committee, the Minister is unable to find in it ground for any such increase as appears to be suggested of the present capitation rate. He is compelled indeed, after anxious consideration of the matter, to offer a substantially reduced rate, in order to avoid injustice to insured persons, on whom in one form or another the burden must fall if any payment were made in excess of what is reasonably necessary to secure an efficient and contented service. He fully recognises that, in the interest of insured persons, he must offer a rate bearing such a relation to the possible earnings of general practitioners as will enable insured persons to obtain, in connexion with medical benefit, the reasonably contented services of a sufficient number of practitioners, including those who by their professional efficiency and personal character especially command the confidence of the insured.

18. The main considerations by which his judgment must be influenced are, on the one hand, the weight that ought to be attached to the fall in the cost of living, and to the even greater fall in practice expenses (especially those connected with locomotion), and, on the other hand, any change in the demands on the doctor's time made by alterations in the conditions of service as well as by the number of attendances which efficient insurance practitioners have found it necessary to give in order to afford adequate medical attention to their insured patients. It has already been indicated that this second group of considerations do not, in the Minister's view, point to any addition to the rate of remuneration. So far indeed as comparative number of attendances is concerned, they might be held to justify some reduction.

19. On economic grounds, whether the circumstances of to-day be compared with those before the war or with those of 1920 or with those of 1922, the conclusion is inevitable that medical earnings must be expected to fall, without impairment to the recruitment of the profession, to a point which would in no case justify a capitation rate of more than between 8*s.* and 8*s.* 6*d.*, unless the rewards of insurance medical practice are to be deliberately placed at a higher level in comparison with those of private practice than heretofore.

20. The Minister observes that the Insurance Acts Committee, on behalf of insurance practitioners, suggest that the rate now to be fixed should operate for a period of five years, and he believes that such an arrangement would be beneficial to the service, and, therefore, very desirable in the interests of insured persons. He cannot, indeed, conceal from himself that a decision in this sense would increase his difficulty in estimating satisfactorily what is the proper rate to offer. The instability of economic conditions which has precluded his predecessors, in negotiations since the conclusion of the war, from making any long-term arrangement, intrinsically desirable as such an arrangement might otherwise appear to be, still operates, though in less degree, to make difficult any forecast of the course of prices and other relevant conditions throughout so long a period.

21. The Minister must differ from the Committee in the view they take of the probable course of prices. He cannot accept the suggestion in paragraph 11 of the Committee's Memorandum that the official index figures of the cost of living will tend to stabilise themselves at a little less than the present rate. Necessarily speculative as any assumption as to the future course of prices may be, the profession cannot reasonably expect, in the light of the experience of the last 12 or 18 months, that the probability of a further decline in prices should be wholly ignored.

22. Taking into consideration all the elements in a most complex problem, the Minister has come to the conclusion that he is justified in making to the profession an offer of 8*s.* 6*d.* per head for three years. If, however, the profession prefer a contract for five years, he is prepared to offer 8*s.* per head on such a contract.

23. The Minister would add that he has been impressed in the course of his discussions with the representatives of the profession and of the societies with the general desire for a development of the present general practitioner service into a medical service of the widest scope. With this desire he warmly sympathises, though on this occasion he has not felt able to deal with the question of development. In his judgment, however, that question is one which must be dealt with at the earliest possible moment. But consideration of it must necessarily raise the whole question of the National Health Insurance system, the financial position, the system of organisation gradually developed and the possibilities of improvement, the services provided and their cost, the case for development and the practicability of providing finance and personnel for such development. It is the intention of the Minister during the currency of the new contract to pray for the appointment of a Royal Commission to investigate these matters. It seems to the Minister that the report of such a Commission is a necessary preliminary to the framing of future policy as to the whole system, including the terms of service with the practitioner. Further, the Minister is deeply impressed with the desirability of avoiding repeated discussions of the character of those which have recently taken place in regard to the position and remuneration of the medical side of the service, as they must, in his view, militate against that mutual confidence and respect which should be the basis of the relationship between doctor and patient.

I am, Sir, your obedient servant,
W. ARTHUR ROBINSON.

The Minister of Health adds that the Secretary for Scotland as President of the Scottish Board of Health, after consultation with the appropriate Scottish bodies concerned, and after careful consideration of the position as regards Scotland, concurs in the terms of the First Secretary's letter, while matters such as mileage for Scottish doctors will be considered separately with the Insurance Acts Subcommittee (Scotland) of the British Medical Association.

2. THE REPLY OF THE INSURANCE ACTS COMMITTEE.

The following reply was sent on Monday last to the Minister of Health from the Insurance Acts Committee:

SIR,—1. The Insurance Acts Committee met on the 4th instant to consider the Minister of Health's reply to its case for the insurance capitation fee, contained in your letter of the 3rd instant. I am instructed to state that the Committee considers the reply of the Minister very unsatisfactory, not only in the offer which it finally makes, but in the manner in which that offer is attempted to be justified.

2. It appears to the Committee that, though in paragraph 2 the Minister states that he accepts unreservedly its

view that the rewards of medical practice should be such as to attract the right type of recruit to the profession and that the remuneration of insurance practice should not compare unfavourably with that derived from private general practice of a fairly comparable kind, he seems in the remainder of his reply to ignore both these aspects of this question. Instead of regarding the National Health Insurance system as a matter affecting the public health of the nation, he has apparently directed his attention mainly to the purely commercial question of what is the lowest sum for which medical attendance on insured persons can be obtained when they are ill.

3. The national aspects of the matter and the value of the practitioners' services in relation thereto are disregarded. The Committee, on the contrary, views the insurance medical service as having been set up not merely to assure medical attendance on certain wage-earners when they become ill, but to promote the national health by having regard to preventive as well as curative methods, by facilitating research into the beginnings of disease (for which such a service obviously offers unrivalled facilities) and for making such investigations and reports on health matters as the Ministry of Health might properly require. This work, even though some of it has not yet developed very far, has a bearing on the subject of remuneration; and in order that the growth of the service in these directions may be encouraged and not stopped it is necessary to attract to it and retain in it every type of practitioner from the new recruit into the profession to the experienced and successful family doctor of standing. To fix such a rate of remuneration as would tend to exclude the latter would deprive the service of very valuable members and would severely restrict that free choice of doctor by the insured population which is an essential feature of the scheme. It would militate also against that increase of numbers of insurance practitioners which alone will allow of the wide distribution of insured persons amongst doctors in such a way as to permit the best work to be done without any distinction between one class of patient and another. The Committee views with very grave concern any policy which might tend to hinder developments on these lines.

4. The Committee has no desire to ignore the relationship between the remuneration received from insurance practice and that from private fees or from contracts in which the State is not concerned as a party. Statements that such private fees yield a remuneration materially lower than that represented by the present capitation fee of 9*s*. 6*d*. will not stand investigation. There are, of course, some practices in which relatively low cash fees are accepted on account of the poverty of the people and the fact that they are without State aid. With these exceptions the Committee finds that, dealing with classes of the community from which insured persons are drawn, taking the lowest fees for each item of attendance that are accepted, ignoring such extra charges as are made for special services (e.g., night visits, fractures, minor operations, anæsthetics) included within the insurance contract, and assuming the same number of consultations and visits as occurs with insured persons, private fees work out frequently at 14*s*. 6*d*. per head, sometimes at 19*s*., and very rarely at less than 9*s*. 9*d*. Clubs are usually established because there is difficulty in paying for medical attendance at the usual private rates, and, being without State aid, are frequently accepted at rates below those of the National Health Insurance Service. Nevertheless, there are contract rates which vary from 15s. to 9*s*. 9*d*. in various parts of the country according to circumstances, and most of these are for a limited service (i.e., excluding special services such as those mentioned above), many require a health examination prior to admission as members, and some even exclude all cases of chronic illness.

5. Paragraph 2 of the Minister's reply speaks of the advantages of a contract system as obviating the risk of bad debts. The importance and extent of bad debts in connexion with private medical practice has been greatly exaggerated, mainly by representatives of approved societies in their endeavours to prove a case for a low fee. Except perhaps during the first year or two of a newly-established practice, such debts are relatively small. The report of Sir W. Plender on all kinds of practices contained in five typical towns puts them at 6½ per cent. or, including cost of collection, at 8 per cent. Relief from these is, of course, an advantage of contract work, but it must be remembered on the other hand that the great and growing body of restrictions on the independence of insurance practitioners set up by the regulations under the National Health Insurance Act, and the imposition of clerical and other duties not strictly medical, are regarded by many as far more than balancing that advantage.

6. The Committee cannot agree that anything contained in the Minister's reply affords a good reason for ignoring the claim that whatever may be regarded as the proper capitation rate should be provided as a first charge from the National Health Insurance Fund, which, as is shown by the Committee's memorandum on this subject, is well able to bear any such charge. This is not the same thing as trying to "justify an offer on the ground that it constituted the maximum charge which the available funds would bear." The Committee made no such absurd suggestion and would again refer the Minister to paragraph 3 of its memorandum and to the Committee's memorandum, drawn up on reliable expert investigation and advice, "The National Health Insurance Fund" a copy of which accompanied the Committee's case. Subject to much more detailed information than has up to now been vouchsafed to it the Committee would suggest that the statement contained in paragraph 3 of the Minister's reply—viz., "the liabilities under National Health Insurance increase with the ages of the insured persons and large reserves will ultimately be required to enable the claims to be met," requires much modification when applied to a national scheme which can depend on an unfailing supply of young lives. In view of the very inadequate way in which this part of its case has been met the Committee is not prepared to accept ex parte statements as to the possible demands on the Fund and insufficiency of the "real surplus." These the Committee finds quite unconvincing and asserts with confidence that the conclusions of the Committee's report, alluded to above, remain unshaken.

7. The Committee notes that in paragraph 6 the Minister to all intents and purposes throws over the arbitrators who accepted the thankless task of settling the fee in 1920. This is profoundly unsatisfactory to those who believe in a rational way of settling differences. It is also very ungracious to the arbitrators and to the then Minister, who, doubtless with due regard to the advice of the permanent officials, offered the same sum (11*s*.) as was afterwards confirmed by the arbitrators.

8. The suggestion is made in paragraph 7 of the Minister's reply that the reduction of 9*s*. 6*d*. in 1922 was received with equanimity by the profession, or at any rate acquiesced in without much sign of dissatisfaction, and this is supported by the statement that the number of new entrants into the insurance medical service did not fall off but even increased. The increase in the first quarter of 1922 was in all probability largely due to doctors who had left war employment and settled into general practice. But the Minister's argument entirely ignores the elementary fact that in industrial and rural areas, so long as a panel system exists, new entrants into practice *must* join it. The Committee would remark that the fact that the size of panel is almost invariably mentioned in advertisements of practices for sale as an inducement to purchase, has no such significance as that implied by the Minister. It has always been usual for men desiring to sell practices to give some indication of the amount derived from their settled appointments and contract work and there is no special or preferential goodwill attached to insurance practice.

9. The Committee takes strong exception to the statement made at the commencement of paragraph 8. At no time has the Committee, either explicitly or implicitly, asked that "doctors should be entitled to such remuneration as will secure them against any lowering of their pre-war standard beyond that entailed by increased taxation." Reference to the Committee's case (paragraph 10) will show its contention to be that even if the capitation fee were 10*s*. 9*d*. the expenditure of the insurance practitioner would have to be reduced to 16 per cent. below what Prof. Bowley argues would be proper if "the standard of living is not to be seriously lowered." If the 8*s*. 6*d*. were accepted the standard of living of the insurance practitioner would have to be reduced to 25 per cent. below the pre-war standard. It is noted that the Minister's reply declines to discuss the careful reasoning of Prof. Bowley. No reason is assigned for this reticence and the Committee will not indulge in surmise. The medical profession is quite willing now, as it always has been, to take its fair share in any sacrifices required by national circumstances, but it believes that the arguments it has put forward, supported by the analysis of Prof. Bowley, justify the profession resisting the reduction in its standard of living to the extent that the Minister is endeavouring to force upon it.

10. The Committee cannot deal with the arguments set out in paragraphs 11 and 12, because, so far as it is able to understand them, it appears as if the Minister was comparing the gross income of the medical practitioner with the net income of the civil servant. The Committee is, indeed, unable to admit the validity of the greater part of the arguments in these paragraphs at all. The £1800 that was taken as a basis for certain arguments in the 1920 arbitration was a maximum gross income and appears to be entirely out of place in the connexion in which the Ministry uses it. The only line of comparison with the civil servant which appears to be useful or, indeed, to have any relevance is that adopted in the table of Prof. Bowley's memorandum. It is here repeated with such modification as is necessary.

PROF. BOWLEY'S TABLE.

—	1914.	March.				July, 1923.*	
		1920.	1921.	1922.	1923.		
Amount	£500	£819	£905	£758	£696	£696	£684
Relative numbers	100	164	182	152	139	139	136
Amount	£1000	£1544	£1690	£1330	£1234	£1234	£1219
Relative numbers	100	154	169	133	123	123	121
Doctor's rate per patient	7/3	11/–	11/–	9/6	9/6	9/6	8/6
Relative numbers	100	152	152	131	131	131	117
Official cost of living index	100	230	241	186	176	169	173
Estimated middle-class expenditure	100	164	—	—	—	157	—

* Rates as just become operative for civil servants and proposed for doctors.

The table shows that though the doctor's relative rise of remuneration never reached the height of the civil servants, the Minister's new proposal will leave it lower. Moreover, as Prof. Bowley points out, the doctor is at a great disadvantage with the civil servant when making adjustments of his expenses and way of life. It appears also to the Committee that the civil servant's pension has been overlooked in stating the Minister's case.

11. With reference to paragraph 13 of the Minister's reply, the figures which the Committee has collected with great care show a somewhat higher number of items of service than that shown in the reply. The Committee notes, moreover, that though adjustment has been made in the Minister's figures for cases of death and removal, no adjustment has apparently been made for those who have ceased to be insured. Further, the Minister assumes that a practitioner with a list of 2000 insured persons, who, in most cases, would be practising in a poor industrial area, has not only time but also opportunity for doubling his income by private practice. It is submitted that in the case contemplated this would not be possible. A fairer instance, however, would be to take the case of a practitioner with the average list of 1000. This would produce at 8*s*. 6*d*. roughly £425 a year. As the insured population is more than one-third of the total population of Great Britain, less than two-thirds remain as the field for private work. From this two-thirds there have to be deducted, first, the day-to-day population of such institutions as workhouses, asylums, hospitals, prisons, and orphanages, together with naval and military establishments, &c.; and secondly, such medical attendance as is provided by public authorities, such as that given at infant welfare and school treatment centres. Further, in this sphere the practitioner concerned has to share the opportunities of practice with that large number of other private practitioners who are not engaged in the insurance service. The case would be more fairly stated if we allow to the average doctor with 1000 insured persons on his list an opportunity of earning a similar amount to this from private work. This brings the total income of the average insurance practitioner not to the £1800 required by the Minister's argument, but to less than half that sum.

12. The Committee thanks the Minister for his appreciation of its readiness to initiate improvements in the service and to accept suggestions for this purpose coming either from the Ministry or from the approved societies. The testimony of the Minister is all the more valuable in view of the ostentatious lack of appreciation shown by the approved societies. The Committee must point out that it did not ask for an evaluation of the additional services which will fall on practitioners under the contemplated changes in the conditions of service. It cannot, however, admit that these new services are of small value, indeed some individual practitioners, and the practitioners in some areas, will probably find the additional services rather onerous.

13. In paragraph 15 the Minister speculates as to the probable causes of the reduction of the sickness benefit claims. The Committee is quite willing to agree that many factors have combined to bring about this happy state of affairs, but no medical man who has examined this question has any doubt that one of the chief factors (and probably *the* chief factor) is the ability of a large section of the population to take advantage of medical advice at an early stage of an illness without any fear of contracting a doctor's bill. The Committee views with some alarm the hint given in paragraph 15 and the last sentence of paragraph 18 to the effect that if by improvements in medical education and skill or by the extension of the preventive side of medicine the number of individual items of service rendered could be reduced, this might be held to justify some reduction in the pay of those who were instrumental in thus conducing to the health and comfort of the insured population and the improvement in the national health. This is, indeed, a striking example of the defect in the Minister's reply to which the Committee has drawn attention in paragraph 2 of this letter.

14. The Committee is in doubt whether it understands the suggestion made in the middle of paragraph 17 of the Minister's reply, where it is suggested that unless the capitation rate is substantially reduced some injustice will be inflicted on insured persons. If this paragraph is meant to suggest that an increase on the 8*s*. 6*d*. offered would mean that the insured person must pay an increased contribution the Minister has quite misunderstood this part of the Committee's case. The Committee maintains it has established that the National Health Insurance Fund is in such a healthy condition, owing to windfalls of various kinds as well as to unexpected reductions in the cost of sickness benefit, that it can quite easily afford to pay the doctor the present capitation rate, or even more, without calling on the insured person or the employer or the State to make any increased contribution, and without depriving the insured person of any additional benefit to which he is at present entitled. It would be a poor consolation to the insured person if a discontented and therefore less satisfactory medical service was forthcoming, even though by the reduction of the capitation rate the approved societies were enabled to declare some additional benefit.

15. The delay in sending suggestions with regard to the different conditions of rural practitioners was due to the fact that the Committee is waiting for the appointment of the small joint committee suggested by Sir Arthur Robinson at the interview with him on Sept. 20th. The proposals mainly of a general character, already submitted, are, of course, subject to the opinion arrived at after the deliberations of such a joint committee, and it is hoped that there will be no further delay in proceeding with this matter. This is an essential part of any settlement.

16. The Committee desires briefly to summarise its case. It has done its best to find out the alleged defects in the National Health Insurance system, and to accept, or itself to suggest, the remedies. The National Health Insurance Fund is at present well able to provide the proper capitation fee for the standard of service required. The proper fee is to be found most simply by calculating what is the present value of the 11*s*. offered by the Ministry in 1920 and confirmed by arbitrators; so far as the Committee can ascertain, with the best expert advice at its disposal, that sum is somewhere between 10*s*. 4*d*. and 10*s*. 9*d*. The Committee was willing to be convinced that its calculations were wrong if this could be demonstrated, but the Minister's reply has not shown the Committee that its calculations were wrong. Nevertheless, though convinced that the fee mentioned above is an equitable one, the Committee has indicated that in view of all circumstances the essential point is that there is no justification for reducing the present amount of 9*s*. 6*d*.

17. As the Committee informed the Minister at its interview on the 2nd instant, its duty is to report to the Local Medical and Panel Committees, which will instruct representatives who will attend at a conference on the 18th instant. The decision as to the acceptance of the Minister's offer rests in the hands of that conference but the Committee has had no hesitation in making the following recommendations:—

(*a*) That the offer of the Minister of 8*s*. for five years be definitely rejected.

(*b*) That the offer of the Minister of 8*s*. 6*d*. for three years is inadequate and that arbitration upon the lines of that of 1920 be asked for.

(*c*) That in the event of such arbitration being refused, the offer of 8*s*. 6*d*. for three years be definitely rejected.

(*d*) That any agreement with the Ministry on the question of the capitation fee be subject to agreement being arrived at with regard to the special circumstances of rural practitioners.

If the Minister is able to express any definite views as to the propriety of arbitration on the lines indicated, it would be of the greatest value and convenience if the Committee could be put into possession of these prior to the meeting of the conference.

18. During the whole of this year with a view to the present negotiations the Committee has been striving for a settlement by consent and for the cultivation of friendly relationship with representatives of approved societies and others interested in insurance administration. It sincerely believes the service needs a period of tranquillity in order that it may have a chance to develop. But the Committee feels that that period of tranquillity is not likely to be gained by the acceptance of an offer which insurance practitioners will regard as inadquate both in itself on economic grounds and as tending to hinder the progressive usefulness of the service to the nation. The Committee fully recognises the very difficult nature of the decision which the Minister is called upon to make and his evident desire to act fairly and impartially.

19. The Committee would very seriously direct the Minister's attention to what will undoubtedly be the effect produced on the average insurance practitioner's mind by the reduction now proposed. Knowing as he does the immense amount of time and trouble his representatives have taken to find out the defects in the system and remedy them, and to suggest ways and means whereby the service may become one of which the nation and the medical profession may feel proud, the practitioner will be struck with the fact that the net result of it all is a proposed reduction in a fee which has already been reduced, without any expert inquiry, by 1*s.* 6*d.* per head per annum from the 11*s.* allowed by arbitration. He will also note that the reduction has been brought about largely at the instigation of the approved societies, who, because they are the agents of the State through whom sickness and maternity and certain additional benefits are paid, claim a deciding voice in the determination of what the medical profession should be paid for their part in what is supposed to be a national service. The result of his examination of the position will be discouraging. He is not likely to be at all hopeful of the service ever becoming a really national one untrammelled by associations with bodies whose interests it is only too plain are concerned much more with the building up of surpluses than with the building up of a satisfactory National Health Insurance scheme which shall be preventive as well as curative.

20. The Committee entirely shares the view of the Minister that repeated discussions of the kind which have recently taken place are not in the interest of the medical profession, the public, or the National Health Insurance system, and it would make many sacrifices to avoid such discussions. It therefore welcomes the statement of the Minister that at an early date the whole question of the National Health Insurance system must be inquired into. Such an inquiry would, however, be likely to have an outcome much more useful to the country if it were set up after a period of several years during which the system had worked smoothly and without interruptions caused by war, immediate post-war conditions, or disputes as to remuneration, and the Committee hopes that the Minister may even yet be able to make an offer which the Committee could recommend for acceptance to its constituents. The Committee has every wish to help towards a peaceful solution.

I am, Sir, your obedient servant,

ALFRED COX,
Medical Secretary.

The representatives of the Local Medical and Panel Committees will have, therefore, before them at the conference to be held on Oct. 18th the important issues in a concrete form.

ST. MARY'S HOSPITAL MEDICAL SCHOOL: POST-GRADUATE COURSE.

(*Concluded from p. 806.*)

ON Oct. 1st, at 11 A.M., Mr. ALECK BOURNE discussed in a paper, which was illustrated by lantern slides, the

Anticipation of Mechanical Difficulties in Labour.

He stated that his findings were deduced from the study of the records of over 2000 labours in Queen Charlotte's Hospital. He believed 90 per cent. of stillborn births to be due to instrumental delivery, and he hoped that by careful antenatal diagnosis this percentage would be largely reduced. Neglecting fœtal causes and dealing only with the maternal aspect, he advised three main methods for the detection of probable mechanical difficulties: (1) The taking of a careful obstetric history; (2) measurement of the pelvis; (3) estimation of relation of head to brim at the thirty-sixth week. He laid stress on the tendency of the weight of the fœtus to increase in multiparæ shown by the necessity for craniotomy in the later pregnancies of some women whose previous children had been delivered by means of forceps. He urged that even apparently normal measurements could prove fallacious, and showed slides of generally contracted pelves, and those which were generally contracted and also flat, where apparently normal measurements were present. He considered the posterior interspinous diameter to be valuable, since it gives an indication of the measurement of the basin of the pelvis proper, and showed tables demonstrating the possibility of error resulting from reliance on measurements alone. As to the relation of head to brim at the thirty-sixth week, if (*a*) the head was engaged, it would always go through; if (*b*) the head was engaging, Mr. Bourne advocated firm pressure from the shoulders for 10 seconds or more to convert (*b*) into (*a*). With fat or intolerant patients an anæsthetic might be necessary. If (*c*) the head was floating above the brim, it would usually be extended and high up, towards the umbilicus. The treatment would be influenced by the obstetric history, but in many cases he advised induction at thirty-sixth week and close observation. If the major diameter of the head began to engage, and if overlapping began to be reduced, the patient could be left to go on with labour. If not, Cæsarean section would be indicated.

Dr. WILFRED HARRIS gave a lecture on

Encephalitis Lethargica.

After differentiating acute encephalitis and anterior poliomyelitis from encephalitis lethargica, he recalled the fact that the last-named disease was first recognised in 1917, when owing to the frequency of bulbar symptoms it was for a while confused with botulism. Attacks started with soreness of the throat and difficulty in swallowing, accompanied by bilateral ptosis, diplopia, and sluggish pupils—in fact, ophthalmoplegia, both external and internal. He emphasised that, in spite of the name "lethargica" and the sleepy appearance of the patient owing to the ptosis, one of the most troublesome symptoms of this disease was insomnia. Only in a very advanced case was coma present, and the patient usually replied to questions quite rationally though slowly. Certain authorities had estimated the mortality as high as 40 per cent., but Dr. Harris failed to agree with this view. From his own experience of over 100 cases he would have put the mortality as about 10 per cent. In the early cases there was absence of headache; the pulse-rate was not usually disturbed, but where it was raised to 120 or so the prognosis was always grave. The diagnosis was simple with bilateral ptosis present, otherwise it was easy to miss. Sluggish and perhaps unequal pupils were helpful points. The disease was often more like tuberculous meningitis than any other condition, particularly in adults. Incidentally, a common mistake was to forget that tuberculous meningitis did occur in adults of varying ages; among his own cases he had had patients up to 60 with this disease. Lumbar puncture was of no assistance, except from the point of view of eliminating other diseases; it gave little help in the differential diagnosis from tuberculous meningitis, since a lymphocytosis was common, and a leucocytosis sometimes occurred. Completely negative lumbar punctures did occur occasionally in tuberculous meningitis, which disease was invariably fatal. Relapses might occur in encephalitis lethargica, and sometimes stiffness, going on to clonic spasms of muscles, persisted for weeks or months afterwards. The typical paralysis agitans mask-like face and rigidity of limbs was one of the sequelæ which once seen was never forgotten. As a rule, there was no tremor. Whereas paralysis agitans had a hopeless prognosis, with a gradual downhill path, the prognosis of the paralysis agitans type of encephalitis lethargica was different.

Slight cases might recover completely, and more severe cases got no worse. The exception to this was in the rare instance of mask-like rigidity, &c., coming on some months after the original lesion. This was of very bad prognosis. The treatment was that of symptoms as they arose. Urotropin was given with the view that it disinfected the cerebro-spinal fluid, but it was doubtful if it affected the disease in any way. For insomnia, failing bromides, Dr. Harris used medinal in 5, 7, or 12 gr. doses daily.

Dr. E. GRAHAM LITTLE dealt with the

Diagnosis of Some Common Diseases of the Skin,

showing numerous cases. He discussed the nomenclature of skin diseases with special reference to eczema, which was really only a clinical term of convenience. Dermatologists, both here and abroad, had at intervals endeavoured to re-classify and describe skin conditions. Hence, the confusion of mind which often attended the study of manuals on this subject. He preferred the classification of eczema ("an exudation which when dry stiffens linen") into: (*a*) Eczema of external origin—e.g., from exposure to excessive cold, or various forms of heat, &c.; (*b*) eczema of internal origin arising from some constitutional cause, due to special sensitisation on the part of the individual to specific bacterial poisons. Eczematoid ringworm deserved mention; it occurred in the groins and extremities—most commonly it started in the toes and might exist there for years before spreading elsewhere. It was frequently indistinguishable from true eczema. Infantile eczema, reported by the mother as due to teething, was common in the first three months of life, and had no connexion with dentition. Its origin was rather in exposure to wind, sun, or cold, combined with dietetic errors and incessant feeding. Babies subject to this condition were generally fat and too heavily clothed. Treatment consisted in restriction of starches, in regular meals, and fewer clothes. Eczema in old people called for special care in treatment, as their skin was particularly sensitive. Diabetic eczema, common about the genitals and groins, cleared up with elimination of sugar from urine. In the general treatment of eczema of internal origin it was advisable to search for foci of infection in teeth and tonsils. *B. coli* and *paratyphosus* and fæcal streptococci were often responsible, and vaccines were remarkably successful in some cases. Other cases responded to fasting and purging on a somewhat heroic scale. Dr. Little ordered Glauber's salts ʒx to be taken fasting in one pint of water first thing in the morning, and another pint or 2 pints of water during the first hour afterwards. This was followed by a complete fast, water only being allowed for 24, 36, or 48 hours according to the endurance of the patient. Lichen planus responded to this treatment like a charm. As to local treatment, for wet eczema he favoured wet dressings, such as saturated ac. boric dressings, or lotion of zinc sulphate and copper sulphate, aa gr. ii. aq. ad ℥i. For small patches silver nitrate 2 per cent. applied b.d. was often useful. After exudation had gone down, he believed in crude coal-tar ointment. This was specially useful for children. A common mistake was to put too heavy dressings on eczema, whereas small thin dressings to keep the eczema cool were indicated. Cold boric starch poultices were the most soothing of all applications. Dr. Little then described and showed cases of various forms of Lichen Planus.

Prof. F. LANGMEAD discussed

Some Functional Disorders in Young Children,

referring especially to three common functional disorders which often made a child's life miserable: (1) Nocturnal enuresis; (2) light terrors; (3) infantile convulsions. In *nocturnal enuresis* careful examination of the urine must be carried out to eliminate organic disease such as renal calculus, *B. coli* infection, highly acid urine, &c. Occasionally nocturnal epilepsy was found to be the unsuspected cause of nocturnal enuresis. It was advisable in cases found to be functional to classify children into: (1) The dull, apathetic, stupid, lethargic child; (2) the bright extra-intelligent scholar. Of these two classes Prof. Langmead thought the second variety was most commonly responsible for the children with enuresis. Treatment consisted first and foremost in the importance of training. The child should be held out at regular intervals during the first six months of his life, and excellent results would ensue. Highly acid urine should be alkalised. Tea must be prohibited. The child should sleep on a hard bed with plenty of fresh air in the room, when a slight stimulus to micturate would be more likely to wake him. As to drugs, in class 1 thyroid was beneficial, in class 2 belladonna pushed to toxic effects—i.e., dilatation of pupils in combination with bromides was advocated. *Night terrors* often depended on excitement just before bedtime, and over-fatigue and adventures in the daytime. The variety where the child did not remember his dreams on awaking was comparatively harmless. But the child who afterwards was aware of what happened during the night was liable to get a permanently damaged brain. Treatment consisted in elimination of excitement, never, in Prof. Langmead's opinion, in psychotherapy. *Infantile convulsions* and infantile eclampsia were really synonymous with epilepsy. Family history was of great assistance. Damage by forceps delivery, mental deficiency, intestinal disturbance, worms, and fevers had to be considered before one could term this condition functional. He particularly wished to warn his audience against prognosis in this class of case. The drug he found most successful in treatment was chloral hydrate gr. ii. pushed two hourly till the child became drowsy. Sometimes when this failed luminal gr. ½ b.d. was beneficial.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

University of Edinburgh.

IN the teaching of medicine and surgery in the Edinburgh University School a new plan has been adopted for all students who have yet to pass the pre-registration examination. It has been felt for some time that the old arrangement, whereby medicine and surgery were taught quite separately, respectively in the third and fourth winter, tended to give the student the impression that the two subjects were completely isolated, and it is hoped by the new scheme to give him a truer perspective of their essential inter-relation. Under the new curriculum, third-year students during the autumn term will receive, in addition to pathology and materia medica, a course of lectures in systematic medicine and an introductory course of clinical medicine, while in the spring term these will be replaced by similar courses in surgery. In the fourth year the students are to be divided into three groups: a medicine group, a surgery group, and a special subjects group (eye, ear, nose and throat, and skin diseases). In each of the three terms the student will change his group. In the spring term the systematic medicine lectures will be completed and in the summer term the systematic surgery lectures. In the fifth year a midwifery group replaces the special subjects group. The advantages of this scheme over the old one are fairly obvious. They should enable the student to advance his knowledge uniformly right up to the final examination.

Prof. J. J. R. McLeod (Toronto) will deliver the Cameron prize lecture in the University on Oct. 16th.

At a meeting of the Senators on Thursday, Oct. 4th, Prof. Thomas Jones Mackie, former Wernher-Beit professor of bacteriology, Cape Town University, was installed in the Irvine Chair of Bacteriology, left vacant through the death of the late Prof. James Ritchie.

Post-Graduate Medical Teaching in Glasgow.

The syllabus for winter session has now been issued. The scheme falls into three groups: Weekly demonstrations, special courses, and clinical assistantships. The series of demonstrations on Wednesday afternoons has been arranged on similar lines to those of former years. The range of subjects is a wide one—including medicine, surgery, obstetrics, and a number of special subjects. Demonstrations will be held each Wednesday afternoon at 4.15 from Nov. 7th, 1923, till May 28th, 1924, inclusive. In order to provide opportunities for more intensive and systematised post-graduate study, there have been arranged some special courses, dealing, for the most part, with two or more allied subjects. These include a course on the Mother and the New-born Infant, in which Prof. J. M. Munro Kerr, Dr. Leonard Findlay, Dr. D. Shannon, Dr. Jas. Hendry, and Dr. J. N. Cruickshank will take part. A course on Genito-Urinary Surgery, under Mr. M. Logan Taylor, Mr. J. Mill Renton, Mr. W. W. Galbraith, and Mr. J. G. McGregor Robertson; a course on Medical Ophthalmology conducted by members of the staffs of the Eye Infirmary, the Ophthalmic Institution, and the general hospitals; a course on Fractures, conducted by Mr. George H. Edington and Mr. Charles Bennett; and a course on Surgical Diseases of Children, by Mr. Alex. MacLennan.

Graduates who wish to enrol for any of these special courses or to become attached to wards or out-patient departments as clinical assistants, should communicate with, and pay their fees to, the Secretary, Post-Graduate Medical Association, The University, Glasgow.

The Morison Lectures.

The Morison lectures will be delivered on Oct. 15th, 16th, and 17th by Dr. Alexander Blackhall-Morison in the hall of the Royal College of Physicians, Queen-street, Edinburgh, at 5 P.M. The subject is: The Progress of Neurology, Psychology, and Psychiatry during the Century since the Foundation of the Lectureship.

THE LONDON MEDICAL EXHIBITION.

Both from the point of view of the number and variety of medical and surgical exhibits and from the large attendances, including many foreign medical visitors, the thirteenth London Medical Exhibition, which was held at the Central Hall, Westminster, from Oct. 1st to 5th, was an unqualified success, and that is saying much; but it also afforded a very practical indication of the rapid strides which medicine and surgery are making and the way in which manufacturers are endeavouring to supply the needs entailed by that progress. This was shown in the departments of electrical therapeutics, organotherapy, as well as in the direction of the new insulin treatment and the requirements involved in the "defatting" of bacteria. To fully describe all the exhibits of fine chemicals, surgical instruments, dental and optical appliances, and so forth, to mention only a part of the large field covered by the exhibition, would be impossible in the space at our disposal; but a brief summary of the chief features will show how rapidly the industrial part of scientific research has been organised since the war. Neither is any satisfactory classification of the exhibits possible, for commercial firms frequently represent more than one department of medicine or surgery. Roughly, however, the exhibition may be divided into drugs and food, instruments and appliances, milk, as being a special article of food, spas and waters, and medical books.

Drugs and Foods.

In the drug section Insulin attracted much attention. Allen and Hanburys, Ltd., of Lombard-street, London, E.C., Vere-street, W., and Wigmore-street, W., in addition to their surgical instruments, preparations for venereal treatment, organotherapeutic products, a new series of indicators for the colorimetric evaluation of hydrogen-ion concentration and for titrations, foods for infants, and diabetic flour, displayed Insulin A.B. Brand in vials of 5 c.cm. and 10 c.cm. In connexion with this new remedy a special set of apparatus and reagents for the estimation of blood-sugar by the Maclean method was shown, while for the benefit of the general practitioner who has little opportunity for keeping himself abreast of the most modern technique, special demonstrations were given almost continuously throughout the course of the exhibition and were remarkable for their crowded attendance.—Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., also made a special feature of Insulin, and 11 stages in the Wellcome brand of the preparation from the ox pancreas to the finished product were shown. Preparations of the various glands for the production of the large assortment of tabloids which this firm make were exhibited, and maps and diagrams formed a very instructive and valuable exhibit. Particular stress was laid upon the use of Kharsivan and Neokharsivan in syphilis, yaws, and tropical ulcer; upon tabloid preparations for malaria; Moogrol for leprosy; and Soloid Antimony Tartrate for bilharziasis, kala-azar, and oriental sore.—Boots Pure Drug Company, Ltd., Nottingham, also demonstrated the blood-sugar test of Maclean, and exhibited a very large selection of synthetic chemicals, compressed tablets of medicinal drugs and chemicals, and pharmaceutical preparations in great variety. Chloramine T., Chloramine T. Surgical Paste, and Dichloramine T. were prominent exhibits, as were Flavine antiseptics and a fine selection of research chemicals.—Anglo-French Drug Co., Ltd., 238a, Gray's Inn-road, London, W.C., showed their Diabetylin for the treatment of diabetes mellitus without the withdrawal of carbohydrates from the dietary; Dimol, an intestinal disinfectant, Galyl for the treatment of syphilis, and many other pharmaceutical preparations, as well as the neoplastic reaction outfit for the differential diagnosis of cancer by the method of Thomas and Binetti.—The British Dyestuffs Corporation, Ltd., 70, Spring-gardens, Manchester, staged a fine selection of dyestuffs for medicinal use, microscopical stains, and materials for biological use. Euflavine, which this firm showed, is a neutral derivative of acriflavine, non-irritant even in concentrated solution, and is used in the treatment of gonorrhœa, infective skin diseases, and as a dental antiseptic.—Crookes Laboratories, 22, Chenies-street, London, W.C., exhibited in an attractive manner their colloidal drugs for medicinal use, and the "Brownian" activity of these preparations was strikingly shown under the microscope by dark-ground illumination. Among these drugs were Collosol Argentum, iodine, sulphur, and calcium, but special attention was drawn to Collosol Kaolin—a comminuted neutral powder in a very fine state of subdivision prepared by the precipitation of a colloidal suspension of china clay with the addition of 1 per cent. agar-agar. The claims for it are that it forms an adherent coating on the bowel wall, thus protecting the surface from irritant particles and digestive juices, an action which has led to its use in ulcerative colitis; secondly, that it possesses a remarkable power of adsorbing certain poisons, more particularly bacterial toxins, while not destroying micro-organisms or in any way affecting ferment action.—British Alkaloids, Ltd., 104, Winchester House, London, E.C., showed T.C.P. (trichlorophenyliodomethylsalicylic acid in H_2O), a germicide analgesic, antithermatic, keroplastic, non-hæmostatic, non-toxic, and non-caustic claimed to have high destructive germ action with a vitalising action on phagocytes.—British Organotherapy Co., Ltd., 22, Golden-square, London, W., attracted much attention by their complete range of monoglandular products, as well as by the polyglandular compounds, lymph serum, lymphoid compound, Ova Mammoid Compound, Ovatmine, and Pancreatokinase. The company also exhibited Sacchromycin, Anisothermal, isotonic and living yeast specially prepared for use in medical practice.—Angier Chemical Co., Ltd., 86, Clerkenwell-road, London E.C., exhibited Angier's Emulsion, each fluid ounce of which contains $33\frac{1}{3}$ per cent. of specially purified petroleum, and 9 gr. of combined hypophosphites of lime and soda with chemically pure glycerine.—Anglo-American Oil Company, Ltd., Albert-street, Camden Town, N.W., made a special feature of Nujol and Mistol, the former being an intestinal lubricant and the latter a solution of menthol, camphor, and eucalyptol in pure liquid paraffin indicated in catarrhal conditions of the mucous membrane of the nose and throat. It has also been found useful in the relief of hay fever.—The G. W. Carnrick Co.'s Standardised Gland Products (Agents, the American Drug Supply Co., Ltd., 40–42, Lexington-street, London, W.), exhibited dried extracts and powders of gland substances—Hormotone for menstrual and menopausal disorders, neurasthenia, &c., Trypsogen for diabetes mellitus, Secretogen for gastro-intestinal disorders, and Kinazyme as an aid to metabolism in tuberculosis, malnutrition, &c. All these products undergo a special laboratory test.—At the stall of Denver Chemical Manufacturing Co., London, E., Antiphlogistine, the well-known hygroscopic antiseptic poultice, was prominently displayed. Composed of anhydrous and levigated argillaceous mineral, pure glycerine, compounds of iodine, minute quantities of boric and salicylic acids, and the oils of peppermint, gaultheria, and eucalyptus, it is non-irritating and non-toxic, keeps in any climate, and is indicated for use in inflammatory and congested conditions.—Endocrines, Ltd., 72, Wigmore-street, London, W., showed a wide range of pluriglandular preparations, among 33 formulas being Adreno-Spermin Co., Thyro-Ovarian Co., and Pan Secretin Co.—C. J. Hewlett and Son, Ltd., 35–42, Charlotte-street, and 83–85, Curtain-road, London, E.C., among a large display of pharmaceutical preparations, showed their Antiseptic Cream, Hæmorrhaline (Ung. pro Hæmorrhoid), Hormonigen tablets containing the hormones of the thyroid, pituitary, ovary and testis, Ung. Iódermiol, prepared with lanoline and containing 5 per cent. of iodine, Liquor Santal Flav. c. Buchu et Cubeba, as well as improved surgical instruments, &c.—Laboratorie des Produits "Usines du Rhone" (Agents, Dick, Coates and Co., 41, Great Tower-street, London, E.C.), exhibited a wide range of pharmaceutical specialities, including Alunozal, ani ntestinal antiseptic; Asciatine, an antineuralgic, Scurenaline, a synthetic adrenalin; Scurocaine, a local anæsthetic; and Scuroforme, a local and internal anæsthetic.—Maltine Manufacturing Co., Ltd., 9, Holborn Viaduct, London, E.C., made a display of their well-known preparations of Maltine and Maltoline, the first containing the nutritive elements of wheat and oats, in addition to those of barley, and the second a combination of maltine, olive oil and phosphorus as an efficient alternative to cod-liver oil compounds.—Menley and James, Ltd., Menley House, Hatton-garden, London, W.C., called attention to their therapeutically active iodine in various forms.—W. Martindale, 10, New Cavendish-street, London, W., showed a wide range of medicinal preparations, including Aspriodine, a compound of aspirin and iodine, for use in asthma, enlarged glands, and arteriosclerosis; Emetine Periodide, which is relatively non-toxic and indicated in amœbic dysentery, as well as vaccines and reagents for microscopic research, blood-sugar estimation, and so forth. Attention may also be called to sodium chaulmoograte. Chaulmoogric has been fractionated by this firm into two main groups for internal and hypodermic use respectively in the treatment of leprosy and tuberculosis.—May and Baker, Ltd., Battersea, London, S.W., called special attention to stovaine solution in ampoules for spinal and local anæsthesia. It is claimed to be as effective as cocaine, while possessing about one-third of its toxicity. A large selection of antisyphilitics was also included in the exhibit of this firm, as well as general and local anæsthetics.—F. Newbery and Sons, Ltd., 27–28, Charterhouse-square, London, E.C., Cardiff and Liverpool, presented, in addition to Valentine's Meat Juice Phospho-lecithin (Wampole), a nerve food, reconstructive tonic, and protoplasmic regenerator of nerve tissue. Each dessertspoonful contains: sodium glycerophosphate, 2 gr.; calcium glycerophosphate, 1 gr.; potassium glycerophosphate, 1 gr.; strychnine glycerophosphate, 1–250 gr.; lecithin, 1–8 gr.; avenine, 1–120 gr. Bromo soda, which we have elsewhere stated agrees better than the potassium salt with some stomachs, is a bromide of sodium with caffein in granular form; and Ingluvin, the essential principle of the gizzard, for use where pepsine refuses to act, were other Wample preparations shown by this firm, who also exhibited Trommer Co.'s preparations, among others being their well-known elixir, malt, malt with cod-liver oil, and hypophosphates, pepsine, petroleum, and with cascara sagrada. An elegant and useful preparation also shown was pill cascara cathartic (Warner).—Oppenheimer, Son, and Co., Ltd., 179, Queen Victoria-street, London, E.C., in addition to Roboleine, the "A," "B," "C" vitamin diet, containing animal fats, maltose, diastase, natural nitrogenous and phosphoric compounds, with the "A," "B," "C" vitamins, made a special feature of organotherapy products, and their medicinal remedy for asthma Grindeline, each drachm of which contains: grindelia robusta liq. ext. (O.S. and Co.), ♏ 15; potassium iodide, gr. 2; trinitrin, gr. 1–200; euphorbia pilulifera tinct., ♏ 20. This firm supplies free to medical men a useful little pamphlet giving brief notes on the history and therapeutic uses of these drugs.—Parke, Davis and Co., 50, Beak-street, London, W., exhibited a wide range of pharmaceutical preparations. Among protein extracts for diagnosis there were more than 100 specific proteins (foods, pollen, hair, feathers, wool, bacteria, &c.), while among glandular preparations in the form of tablets were to be seen orchic compound, ovarian compound, suprarenal compound, thyorchic compound, and thyrovarian compound. A feature was also made of the vaccines prepared at St. Mary's Hospital, anti-catarrh and mixed vaccine for colds and mixed vaccine for bronchial asthma.—Charles H. Phillips Chemical Co., Acton Vale, W., displayed Milk of Magnesia and Phospho-muriate of Quinine Compound. —Sandoz Chemical Co., Ltd., Canal-road, Bradford, introduced to the notice of visitors their several preparations of Felamine, an association of biliary acids with hexamine, which is a cholagogue and disinfectant of biliary passages and intestines, as well as their Femergin, Scillaren, and Ipecopan, the latter being claimed to be superior to Dover's powder both in constancy and rapidity of action.—Savory and Moore, Ltd., 143, New Bond-street, London, W., had an interesting exhibit of their well-known preparations, including the food for infants, invalids, and convalescents, which approximates closely to human milk and contains the vitamins. Prominence was also given to Ethanesal, the underlying principle of which is ketones treated with carbon dioxide and ethylene with ether as a solvent.—Charles Zimmermann and Co., Ltd., 9 and 10, St. Mary-at-Hill, London, E.C., drew particular attention to Idozan, a colloidal iron used as an oxy-hæmoglobin excitant in the treatment of anæmia. The preparation of this substance has been based on the principle of ionisation and is stated to contain 5 per cent. of iron in a non-irritant form. It is a palatable preparation which does not blacken the teeth, and a large number of hæmoglobin charts were exhibited showing the marked rise during treatment and the fall when treatment was suspended. Chalybeate Medicinal Chocolate was another preparation shown by this firm. Each piece is equivalent to 3 gr. of iron.—Under the term Pineoleum, the Pineoleum Co., Inc. (Agents, American Drug Supply Co., Ltd., 40–42, Lexington Street, W.), exhibited a pleasant-smelling inhalant, standard sed and guaranteed chemically pure. It is indicated in irritation of the mucous membrane of the throat and nose where anodyne, antiseptic, and emollient action is required.

Pharmaceutical Supply Co., Ltd., 4–10, Hatfield-street, London, E.C., exhibited many useful hospital and nursing home requirements, and the Thermogene Co., Ltd., Victoria Embankment, London, showed their specially prepared cotton-wool, which, in suitable cases, possesses a distinct advantage over poultices.—Cuxson, Gerrard and Co., Ltd., Glasgow, had a useful selection of surgical ligatures and plasters, and also exhibited peptone.—Genatosan, Ltd. (British purchasers of the Sanatogen Co.), Loughborough, Leicestershire, exhibited their Sanatogen, an organic compound of casein and sodium glycero-phosphate Formamint, the well-known throat disinfectant, Genasprin, pure acetyl-salicylic acid, and Cystopurin, a urinary antiseptic containing undecomposed hexamethylenetetramine. This firm also showed detoxicated vaccines.—Oxo, Ltd., Thames House, Queen-street Place, London, E.C., displayed their well-known concentrated form of the stimulating extractive, together with easily digestible and nourishing constituents of fresh beef oxo, "oxo cubes," "hospital oxo," "lemco," and "gong" meat soups.—Virol, Ltd., Hanger-lane, Ealing, London, W., showed Virol and Virolax, the latter of which is now put up in a new form of package.—Vitmar, Ltd., 59, Standen-road, Southfields, London, S.W., showed the Callard's vitamin foods. The Vitmar supplied by this firm has been shown by biological experiments to contain the fat-soluble A and water-soluble B and C, and in addition to its use for the reinforcement of ordinary foods has been used as a galactagogue.—Bovril, Ltd., 148–166, Old-street, London, E.C., had a very attractive display of their Bovril and invalid Bovril, which is a highly concentrated pure preparation of beef whose nutritive value has been proved by long trial.—Newton, Chambers and Co., Ltd., 331, Gray's Inn-road, London, W.C., called attention to Izal for both medical and ordinary use as well as in its many forms as ointment, lozenges, soap, and so forth, and the "Zal" disinfector, an improved form of bronchitis kettle which can be used over a gas ring, spirit lamp, or other form of heat producer, and Jeyes' Sanitary Compounds Co., Ltd., 64, Cannon-street, London, E.C., showed their various preparations of Cyllin.—J. C. Eno, Ltd. (Eno's Fruit Salt), Victoria Embankment, London, E.C., showed their pleasant effervescent saline laxative, which is a combination of alkalies with fruit acids. Salts, such as sulphate of soda and magnesium compounds, are excluded, and care is taken that no trace of calcium, lead, or other common impurities exist in any of the ingredients.—Pepsodent Co., 42, Southwark Bridge-road, London, S.E., displayed their tooth paste, which is acidic in character and stimulates the salivary glands by reason of the contained acid calcium phosphates.—D. and W. Gibbs, Ltd., 105, High-street, Wapping, London, E., demonstrated the value of their dentifrice and dental cream and showed a variety of toilet soaps and a shaving soap, and Kolynos Inc., Chenies-street, London, W.C., displayed their well-known gritless dental cream.—Jaeger Co., Ltd., 95, Milton-street, London, E.C., exhibited pure wool clothing, and Bantum Products, Ltd., Farnley, Leeds, a preparation of coffee consisting of the soluble portion of that article.—Yomf Mfg. Co., 122, Greyhound-lane, Streatham, S.W., called attention to an antiseptic, detergent, and emollient cream for the hands when performing work that soils them, and C. R. Harker, Stagg and Morgan, Ltd., Devon Wharf, Emmott-street, Mile End, London, E., showed Peldo, an antiseptic cream for preventing dirt from penetrating the skin.

We shall deal with the remaining sections of the Exhibition in our next issue.

MINISTRY OF HEALTH.—Sir William Joynson-Hicks has appointed Lord Erskine to be his Parliamentary private secretary; Mr. Douglas Veale, of the Ministry of Health, to be his private secretary; and Mr. A. Nevil Rucker, also of the Ministry of Health, to be his assistant private secretary.

Congratulatory Messages.

The following additional congratulatory messages to The Lancet *on its Centenary have been received.*

So far as I know only two medical journals printed in English have passed their centenary, the *American Journal of the Medical Sciences* in Philadelphia, which achieved its centenary a few years ago, and now The Lancet, known all over the world, but especially in the English-speaking world. Its very name is historic, as it reminds us of a long abandoned but once almost universal treatment, while its content displays the most modern science. I have known and read it for over half its existence. It has ever stood in the front rank in labour for the good of the profession, for reform in our hospitals, and for their generous support by the public. I say " our " hospitals, for their world-wide reputation and influence for progress we in America are glad to recognise. The recent generous support given by the Rockefeller Foundation meets with an emphatic approval by our profession in America.

Long may its columns continue to be filled with the latest news in scientific and in practical medicine in all its branches. The older it grows may it ever show as it does to-day the vigour and elasticity of youth.

W. W. Keen,
Professor of Surgery, University of Philadelphia.

Will you extend to the proprietors and the staff and receive for yourself our felicitations at this time? While American physicians and surgeons naturally cannot appreciate certain services which this journal has undoubtedly rendered to the promotion of British medical enterprises, it is fully cognisant of the services it has rendered to the profession at large by the important contributions which have constantly appeared in its pages. With best wishes for the progress of The Lancet during its second centenary.

G. W. Crile,
Professor of Surgery, Cleveland, U.S.A.

May I add a word of congratulation to the many similar tributes you will have received? Though a layman, I have enjoyed the privilege of being more closely and intimately associated with your profession than any other man outside it, and for over 30 years The Lancet has proved a weekly source of enjoyment and education to me. The profession of medicine owes a debt of deep and lasting gratitude to The Lancet for its contribution during the past 100 years to the advancement of science, and the position which it occupies in the world of literature is one to be reflected upon with pardonable pride. You have my earnest good wishes for its continued prosperity, tendered in all sincerity.

W. E. Hempson.

Permit me to send to the whole staff and the proprietors of The Lancet my heartiest congratulations on the occasion of a centenary of a medical journal, and one which, during its existence, has always been the exponent of the noble and world-felt position held by British science generally and British medicine especially. Vivat, crescat, floreat!

Fully well understanding the honour of being

The Vienna Correspondent of The Lancet.

C'est une particulière joie pour le correspondant français du Lancet d'écrire dans ce numéro du Centenaire, et d'y indiquer combien les échanges intellectuels ont été intimes entre nos deux pays depuis un siècle et combien aussi ce journal y a contribué. Non seulement la réputation de Lancet est mondiale, mais pour le lecteur français, en dehors même du milieu médical où son éloge n'est plus à faire, il représente le type du journal médical anglais, la tradition britannique, qui sait si bien se renouveler en gardant son cadre, ouvrir ses colonnes aux idées neuves, se lancer dans des voies nouvelles, et rester malgré cela elle-même. C'est par l'élite dirigeante d'une nation que se font les rapprochements, et rien n'est plus propre à créer une " entente " que d'échanger des points de vue scientifiques, de confronter des méthodes. C'est à cela que s'est employé le Lancet en instituant des 1830 des comptes rendus des travaux originaux français, et des traditions des conférences cliniques et pathologiques de nos hôpitaux.

Orfila, Andral, Dupuytren, Magendie furent les collaborateurs du journal, et c'est aussi dans ces premières années qu'eurent lieu les mémorables discussions sur le système phrénologique de Gall, auquel Bell et Brodie firent une opposition, si intelligente et si ferme. Cette collaboration franco-anglaise n'a pas cessé et actuellement parait régulièrement un supplément français dirigé par le Professeur Achard. En dehors de ces travaux réellement scientifiques, le Lancet tenait ses lecteurs au courant des évènements français, par les lettres de son correspondant parisien, chargé de renseigner le public médical anglais sur tous les faits qui touchent la médecine, de près ou de loin. C'est donc une collaboration intime qui depuis bientôt un siècle a relié le Lancet et la médecine française. Si par l'intermédiaire de ce journal les idées françaises pénétraient en Angleterre, c'est aussi par lui que les idées anglaises influaient chez nous. Comme je le notais au début de cet article, le Lancet a pris en France, droit de cité pour le public médical français il représente le journal type, et les traductions de ses articles originaux qui paraissent régulièrement dans tous nos grands journaux médicaux, sont toujours recherchées. C'est encore à lui qu'on a recours si on veut se renseigner sur les travaux anglais, on recherchera d'avoir là, ce qu'on veut trouver.

Mais en sortant du domaine propre des travaux ou des recherches médicales, on peut se demander qu'elle a été de puis un siècle, l'influence d'un journal médical anglais, sur nos idées. La science française se manifeste toujours par un point de vue original, en médecine comme en beaucoup d'autres sciences d'ailleurs il y a une idée française, toute différente de l'idée allemande par exemple et souvent opposée. Plus d'imagination, l'habitude d'envisager les faits d'un point de vue plus élevé, plus général, donne à la médecine française une allure qui lui est bien personnelle. Il est donc particulièrement intéressant de la voir traduite, comprise, et interprêtée par le miroir anglais, le Lancet nous renvoie notre image modifiée, adaptée à son nouveau cadre. Presque toujours cette adaptation a pris une forme pratique, et c'est, je le crois le sens le plus net de l'influence anglaise sur la science médicale française. Aussi cette influence s'est elle exercée surtout dans le domaine de l'hygiène et de l'éducation, où, dans ces dernières années particulièrement, nous retrouvons constamment un courant d'anglicisation. Il serait à souhaiter que les relations médicales franco-anglaises soient de plus en plus fréquentes, de part et d'autres, nous aurions grand profit à échanger nos idées.

Les conférences de professeurs, qui, l'an dernier, ont été organisées à Paris et à Londres, sont le début de ce contact plus parfait entre deux pays, où l'entente peut être aussi intellectuelle que cordiale.

Your Paris Correspondent.

Allow me to congratulate you, the staff, and the publishers of The Lancet upon the occasion of your Centenary. It has been a great satisfaction to me to be connected with The Lancet for a long course of years, and I hope that this connexion will maintain the friendly relations which have prevailed hitherto.

Your Berlin Correspondent.

Correspondence.

"Audi alteram partem."

POST-HOLIDAY LASSITUDE.

To the Editor of THE LANCET.

SIR,—Your leading article of Sept. 1st last deals with a subject that is of special interest at this time of the year, when so many people, returning from their holidays and getting back to their old routine, find to their disappointment that, sunburnt and muscular as they may be, they are even less inclined for work than when they went away to recuperate. And the more extended the holiday the more apt is this lassitude to occur, and one often hears men remark that if they only stayed away a bit longer they would never want to work again.

The suggestion is made by you that this limpness may be due to the blood destruction that takes place during unusual exercise, and you quote Dr. G. O. Broun's work on dogs in support of this. Dr. Broun found that when dogs that had for long lived a sedentary life along with a generous diet were subjected to severe exercise for several days they appeared to be very tired at first, and an examination of the blood, repeated at frequent intervals before, during, and after the exertion, showed that the total corpuscular volume was greatly decreased by the exercise and that it took from one to three weeks to regain its former state. Evidently the blood cells are in some way destroyed during the exercise when this is undertaken by well-fed animals not used to it. The changes do not occur in dogs that have already been living an active and abstemious life. There seems, then, to be no doubt that severe exercise in sedentary, well-fed animals produces blood changes, but it is a long jump to thus explain the post-holiday lassitude (of the existence of which there is no doubt) as being due to such blood changes. It was noted by Dr. Broun that "in the early days of the experiment the dogs appeared tired, but by the end they showed all the signs of thorough enjoyment." And yet the blood changes persist for one to three weeks after the exertion is over. A man who has been on an active holiday for, say, a month feels very fit at the end of the pleasant experiment (just like the dogs), and it is not until the holiday is over and he is back at the old grind that the lassitude appears. Possibly the tired feeling on Monday morning after a too vigorous week-end may be explained in the way that you suggest, but I am speaking of holidays of longer duration than this.

To my mind, the post-holiday lassitude is, as you mention, chiefly psychic, but no doubt is also in part due to the fact that the man has become used to much exercise and now misses it, and, moreover, he has probably picked up a good appetite during his wanderings and now eats more than is required to meet the caloric requirements of his resumed quiet life, and hence suffers accordingly. Dr. Broun's dogs were worst in the early days of their holiday [sic]; the human animal only feels the lassitude after the holiday is over.

I am, Sir, yours faithfully,

Toronto, Canada, Sept. 24th, 1923. R. D. RUDOLF.

UNIVERSITY PATHOLOGICAL DEPARTMENTS.

To the Editor of THE LANCET.

SIR,—It is evident that there is little to be said in favour of university pathological and bacteriological departments carrying on outside work, since your leading article has only elicited a half-hearted defence from Prof. J. W. McLeod, whose arguments would apply equally to several other university departments; I should like to ask him if he would approve of a university carrying on the work of a public analyst through its chemical department. I do not suppose that any university would dream of doing such a thing, the reason being that, as I stated in my previous letter, universities regard chemistry as a science, while they do not so regard pathology. May I suggest a further point—that professors of pathology and bacteriology should show a little sympathy with those who wish to earn a living by the practice of pathology, although they are not attached to a university laboratory.

I am, Sir, yours faithfully,

CHARLES POWELL WHITE.

Manchester, Oct. 3rd, 1923.

To the Editor of THE LANCET.

SIR,—A pathological department in a university ought to strive to attract all real workers in pathology in or around that centre who, in addition to their routine work, desire to have the fuller facilities for research work on lines which are difficult to achieve in this country in the smaller laboratories. They should not feel that they are entering the portals of a rival institution, but rather that they are returning to their Alma Mater to further in their spare time the claims of research and humanity.

As one who has had to strive for a living in pathology I should like to record my opinion that it is unfair that universities should in virtue of their endowments endeavour to oust the smaller laboratories and gain a monopoly not only of private pathological work, but of public health work. It is not always a question of cost which is concerned, since many of the smaller laboratories are run far more economically than the larger ones without any real loss of efficiency. It is easy, however, for university authorities to influence the payment to them of large sums for public health work which could have been done quite as well and quite as economically by other laboratories. The smaller laboratories to-day are as essential to the community as are the larger laboratories, and they should be encouraged by their university colleagues rather than suppressed.

I am, Sir, yours faithfully,

Manchester, Oct. 3rd, 1923. ARNOLD RENSHAW.

LICE AND CRIME.

To the Editor of THE LANCET.

SIR,—Recently there has appeared in the press an important statement by the Society for the Repression of Vermin showing the enormous sums of money rats and mice cost us. I want now to call attention to the perhaps even greater mischief done by smaller vermin—lice—and their connexion with crime.

1. The three great causes of crime are drink, gambling, and destitution. Many persons steal or beg from destitution and because they will not go into the workhouse or the more hated casual ward. And some break windows or do other "malicious" damage, so that they may be sent to prison. Others, if in workhouse or casual ward, will refuse to work, tear up their clothes, or commit some other "workhouse offence" with the same object. And a few quite quietly starve to death. Now I have been told that to the more decent men on the road, the most detestable feature of some of the casual wards is the prevalence of lice. This disgusting condition is quite needless, because other casual wards are *not* "lousy," and are quite decent. The remedy is simple. The new Minister of Health, Sir W. Joynson Hicks, is about to issue a new Order for the casual wards. This Order should contain definite and detailed provisions for the cleanliness of the beds and clothing and bathing arrangements and general accommodation of the casual wards; and it should be declared that it is the duty of the inspectors to see that they are carried out. As an additional security, I would suggest that the magistrates should use their almost forgotten powers of visiting the wards given by the Workhouse Act, 1790, and the Poor-law Act of 1834.

2. A considerable number of persons are convicted every year for not sending their children to school. When many of these cases come before the court it is

shown that the children have been sent to school, but in such a lousy condition that they are (very properly) sent back, and instructions for cleaning given which the parents have not carried out.

3. I will not lengthen this letter by any suggestions how to deal with these latter cases, but wish to emphasise the necessity of efforts to exterminate these vermin in the casual wards and elsewhere on account of their being a cause of crime as well as inflicting serious injury to comfort and self-respect. And really to offer lousy casual wards to ex-soldiers is the deepest ingratitude. Of course it is not only the lice in the wards which push men into crime; there is also the wretched food and (in some wards) the cruel task. The new Order should amend the treatment in these respects.

4. I should be glad if you can add the following figures of persons tried in courts of summary jurisdiction in 1921—the latest available: Begging, 4313; sleeping out, 2923; misbehaviour of paupers, 459; stealing or destroying workhouse clothes, 130. It is alarming to see how these figures have risen since 1917.

The figure for malicious damage is 10,317; for simple larceny and minor larcenies, 40,992; and for offences against the Education Acts, 26,529.

I am, Sir, yours faithfully,

Oxford, Sept. 29th, 1923. J. THEODORE DODD.

THE LATE MR. H. D. FARNELL.

To the Editor of THE LANCET.

SIR,—I wish to add a word or two to the excellent obituary notice of Mr. Farnell, of Eastbourne. He was a fellow student of mine and a fellow resident in old days, and we were staunch friends throughout his professional life, and I can bear witness to the singular unity of his character and career from first to last. He was always alert, quick at the uptake, seizing at once the salient features of any case. He arrived at his conclusions rapidly, and they were based on sound premises. In those early days he had undoubted charm; he was cheery and friendly alike with patient, fellow student, and chief. There were few residents so popular and few so modest and yet inspiring. All these qualities were characteristic of Farnell throughout his happy and busy life. He never spared himself. It is no wonder that his faculty of rapid and effective investigation, his marked power of concentration and decision in stating his conclusions, combined with real sympathy, made him a very successful practitioner. He was always bon camarade. I should think it never occurred to him to ascribe unworthy motives to his fellows. In medical societies and all joint efforts for the good of his profession he was keen, indefatigable, and possessed of remarkably good judgment.

It is needless to say that everybody who met Farnell in his home very soon realised what a good husband and tender father he was. He had in no scant measure the very genius of friendship.

I am, Sir, yours faithfully,

Sept. 28th, 1923. THOMAS BARLOW.

STRIÆ DISTENSÆ.

To the Editor of THE LANCET.

SIR,—In your issue of Sept. 1st Dr. Bedo Hobbs states that it is probable that the two conditions—striæ distensæ and lineæ gravidarum—are not identical. He bases this assumption on: 1. Age-period strictly limited in striæ distensæ. 2. "The striæ gravidarum are pinkish-white in appearance even when first formed and never present the livid purple colour of striæ distensæ, which seems to indicate a more profound change." 3. That "one might argue that the general nutrition of the body, including the skin, is lowered during pregnancy, and that the pressure of tight clothing on the distended abdomen acts in the same way as the pressure produced by lying in one position." He refers to one group of cases in which large deposits of fat are *rapidly* laid down.

In subcutaneous œdema and in those with striæ above the patella, &c., are cases in which the skin is suddenly stretched and remain so for some time with no relaxation. It is here that the livid purple coloration is noticed and may be compared with the result of tension sutures used in abdominal (chiefly) operations, where frequently one observes dark blue or purple discoloration at the site of the sutures, due to *sudden* and prolonged stretching of the skin. Lineæ gravidarum occurs as the result of *slow* progressive enlargement, and where, as a result of the slowness of the process, the nutrition of the skin is not impaired and the blue discoloration (which is the sign of impairment) does not occur. I would suggest that herein only lies the difference between the two conditions. I am, Sir, yours faithfully,

Swansea, Sept. 28th, 1923. H. SPENCER-DAVIES.

CANCER AND DIET.

To the Editor of THE LANCET.

SIR,—Referring to Dr. Monckton Copeman's statements in THE LANCET of Sept. 29th as to the effect of modified diets in cases of cancer, I should like to point out that many years ago the late Dr. Mortimer, of Exeter, one of the most observant general practitioners I have ever met, pointed out to me the good effects of denying meat as an article of diet in inoperable cases of cancer. I have since in such cases advised that this rule should be followed and have in a considerable number of cases heard from the practitioners concerned that in their opinion this practice had proved beneficial. I think it is especially useful in the elderly.

I am, Sir, yours faithfully,

Exeter, Sept. 30th, 1923. RUSSELL COOMBE.

THE TUBERCULIN DISPENSARY FOR THE POOR.

To the Editor of THE LANCET.

SIR,—In your review of Dr. Camac Wilkinson's book on this subject in THE LANCET of Sept. 8th, some statistics of mine were subjected to a certain amount of criticism to which, perhaps, I may be permitted briefly to reply. I regret that my short article [1] did not appear explicit enough as to the method of selection of cases, which, as the reviewer not unreasonably states, is a most important factor to be considered in coming to any conclusion.

The sole method of selection of cases was the ability of the patient to attend the central dispensary twice a week for treatment and was not determined in any way by temperature or physical signs. Patients "on the books" of the six or seven outlying dispensaries were not treated by tuberculin for the simple reason that it was impossible in an area of about 25 miles radius for one tuberculosis officer to attend frequently enough to administer the tuberculin. The central dispensary at Oxford was really a tuberculin dispensary. At it were treated with tuberculin every patient who could attend regularly. In my figures are included cases of advanced disease who received a few injections only, cases which in the light of greater clinical experience would not now be subjected to tuberculin treatment and which, at varying periods in the natural progress of the disease, were no longer able to attend. These cases obviously reduce the percentage of good results and explain the difference between my figures and those of Dr. Wilkinson [2] where, of patients in stage 1 and stage 2 of the disease nine years after treatment, 72 per cent. were still alive and able to work. Those of us who have used his method of tuberculin administration are prepared to accept his figures and would welcome further inquiries, as you suggest, into the action of a remedy which we believe to be at once more efficient and much more economical than the methods at present employed in the treatment of lung tuberculosis.

There is much yet to be learned about tuberculin. It may be that Prof. Dreyer's antigen will solve the difficulties in treating the third stage cases, although previous "defatted" tuberculin, in small doses, have met with little success. Better results in the first and second stages of the disease can hardly be expected than those published by Dr. Wilkinson.

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[1] Brit. Med. Jour., Lond., Sept. 9th, 1922, 473.

[2] Ibid., April 21st, 1923.

In conclusion, I should like to state that my work with tuberculin was carried out independently of Dr. Wilkinson, with whom I had no association from the time I began using his method till quite recently, prior to his departure for a prolonged holiday abroad.

I am, Sir, yours faithfully,

Oxford, Oct. 3rd, 1923. WILLIAM STOBIE.

PS.—All cases referred to were sputum positive.

COW'S MILK IN INFANT FEEDING: A CORRECTION.

To the Editor of THE LANCET.

SIR,—May I call your attention to a mistake in THE LANCET of August 18th (p. 361) in the report on my paper, Cow's Milk in Infant Feeding, which was read in the Children's Section of the British Medical Association annual meeting at Portsmouth on July 26th.

I am reported to have said that *spray* process milk powders formed a curd with rennet similar to human milk, were rich in vitamins, &c. My paper was published in the *British Medical Journal* of August 25th, and reference to p. 324 of that issue gives my words: "Whereas the addition of rennet to reconstituted milk prepared by the former process (the roller method) produces a fine flocculent curd, *its addition to a solution of spray process milk powder forms a dense mass identical with that formed in raw milk.*" My remarks as to vitamins applied to dry milk generally and not to spray milk. Your report has misrepresented facts which probably are well known to all who have studied the subject.

I am, Sir, yours faithfully,

Harley-street, W. R. J. BLACKHAM.

*** We regret the error, which, as our correspondent says, must have been detected by students of the subject.—ED. L.

Obituary.

THE LATE SIR HALLIDAY CROOM.

WITH the death of Sir Halliday Croom, which was chronicled last week, there passed away the last link between the present and the days of Edinburgh's unassailed pre-eminence as a medical school, the days of Syme, Lister, and Simpson. It is probably true to say that since the death of Simpson no death in the Edinburgh medical world has left such a gap, and Croom probably rivalled Lister in the affectionate esteem and regard in which he was held by his students. It is essentially as a teacher that Sir Halliday Croom will be remembered. When in 1878 Dr. Croom, as he then was, began lecturing on midwifery and diseases of women in the extra-mural school in Minto-street his success was immediate. From that time to his retirement from the Chair of Midwifery in 1921 he devoted himself heart and soul with almost religious fervour to his teaching, and to his power will testify every student who passed through his hands. Croom was the first man in Edinburgh to deliver post-graduate lectures, and the story is told of the effect of one of them on an American doctor. The lecture was on extra-uterine pregnancy, and on being asked what he thought of it, the doctor exclaimed, "I guess he makes you feel that the welfare of your mortal soul depends on your knowledge of extra-uterine pregnancy." The story well illustrates the impressive personality of the man, his wonderful histrionic gifts, and his unflagging enthusiasm. In the pains and rouble he took with his teaching he must be without ival. On the mornings on which he was to deliver a clinical lecture he would do no other work before it, but spent all the time in preparation, and every one of his systematic lectures was freshly prepared. He had a great facility for picking out the salient points of a case and driving them home with happy illustrations. It was in the spirit of the Hippocratic Oath that he taught, imparting his knowledge to others as a sacred duty, and he was always happiest and at his best when lecturing to an audience of students whom he knew personally. He was ever a staunch friend of his students, many of whom have reason to remember his friendship in deep gratitude. It has been said that his strength was his weakness; that had he devoted to investigation some of the energy he imparted to his teaching he might have added more greatly to the scientific knowledge of his specialty. But the neglect of his great gift would have been sinful. He improved his talent with ceaseless endeavour, and the far-reaching effects of his life's unselfish work no man can gauge. Like all great men, Croom had his foibles. He was particularly proud of his handwriting, and used to take the most meticulous care over his signature. He always lectured in a swallow-tailed coat—the same one. It was his prophet's mantle. When he assumed it the suave, courteous physician became the inspired teacher. Croom felt his retirement from the Chair of Midwifery most keenly, and he confessed that, after he had given up his teaching which had become so essential a part of his life, he felt like a wandering ghost. In the end no doubt, although he remained optimistic and hopeful, he was not altogether sorry to lay down a life well spent.

To the above appreciation of an old pupil we add a personal tribute from his friend and colleague, Dr. A. F. Barbour, who writes: "Sir Halliday Croom was the most considerate of colleagues and a very true friend. He had a charming personality, sensitive to the attitude of others and to the graces of life, careful of those small courtesies which make the wheels run smoothly, were it an exquisitely spaced, penned, and worded line of congratulation, of apology or direction; happy to advance the interests of a friend, desperately unwilling to hurt or offend the least intimate or the most undeserving. Many will remember the gracious host who tactfully and cordially made each guest welcome and was never so intent on his own good story as to fail in drawing out from others their opinions and information. For a long term of years we were intimately associated as colleagues in the Infirmary, Maternity Hospital, and University; few can look back with greater pleasure on a longer period of work together, and during it all the wonderful courtesy and consideration of Croom made one glad to have been one of his friends. As revealing depths not reached by the casual acquaintance, I may be allowed to add a sentence from his last letter, one of many received during our years of intercourse: 'I think few men can look back with greater pleasure upon a long memory of association. *Fiat voluntas Tua.* The night has come, I can hardly realise the day is past.' And this from a letter to another intimate friend: 'As one gets older one's creed gets simpler. I am grateful to God for all his mercies and endless forbearance, and my hope and belief are that that mercy and forbearance will be extended to us in the world beyond. For I feel sure that when that wondrous hour comes when the road leads down to the last slope which we must all follow, and I come near the dark waters over which the evening mist hangs thick, I shall find that faithful friend whom I have so often forgotten and wronged waiting near at hand to give me a last word of cheer, or, it is just possible a word of welcome as I set my foot on the shore which is so far off and yet so near.'"

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.—An ordinary meeting of this Society will be held at 122, Harley-street, at 4 P.M. on Oct. 15th, when a discussion on Thoracoplasty will be introduced by Mr. W. H. C. Romanis, and a final report will be submitted by the committee to which was referred the question of the training of tuberculosis nurses.

Medical News.

UNIVERSITY OF LONDON.—A course of eight lectures on the Histology of the Nervous System is being given by Dr. C. Da Fano at King's College, Strand, W.C. 2, at 4.30 P.M., on Wednesdays. The course began on Oct. 10th. A course of eight lectures on Newer Aspects of Nutrition is being given by Prof. V. H. Mottram at King's College for Women, 61, Campden Hill-road, W. 8, at 5 P.M., on Mondays. The course began on Oct. 8th. Attendance at either course is recognised in connexion with the B.Sc. (Honours) degree in physiology, and admission is free.

University College.—Dr. A. V. Hill, the newly elected Jodrell Professor of Physiology, will give a public inaugural lecture on the Present Tendencies and Future Compass of Physiological Science on Tuesday, Oct. 16th, at 5.30 P.M. The lecture will be held in the theatre of the new anatomy building at University College, and Prof. E. H. Starling will take the chair. Cards of admission will be sent on application to the secretary of the College; such applications should be accompanied with a stamped addressed envelope. The new anatomy building will be open to inspection as from 4.30 that afternoon.

UNIVERSITY OF SHEFFIELD.—The diploma in Public Health of this University has been awarded to Samuel Bryson and Patrick Kane.

UNIVERSITY OF BRISTOL.—A post-graduate demonstration will be held at Swindon on Oct. 17th, when Mr. C. F. Walters will discuss Differentiation of the Acute Abdomen and its Simulators.

PSYCHOLOGY AND PSYCHOTHERAPY.—A course of seven public lectures on this subject will be given in the Examination Schools at Oxford by the Wilde Reader in Mental Philosophy, Dr. William Brown, on Mondays, at 5.45 P.M., commencing Monday, Oct. 15th.

FEDERATION OF MEDICAL AND ALLIED SERVICES.—On Wednesday, Oct. 24th, at 4 P.M., a Conference will be held at the offices of the Federation, 12, Stratford-place, London, W., the question to be debated being the utility of a periodical medical overhaul of life policies. It is suggested that holders of policies willing to submit and pay for such scrutinies might be able to obtain more favourable terms from insurance companies, and that companies might like to obtain up-to-date information as to their risks.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The demonstrations, open to advanced students and medical practitioners, of specimens in the Museum commenced in the theatre of the College in Lincoln's Inn Fields on Oct. 12th, at 5 P.M., when Sir Arthur Keith showed specimens illustrating hernial formations of an acquired nature which form at various points of the alimentary canal and at other sites; on Oct. 19th, at the same time, those illustrating hernial formations of developmental origin which occur along the alimentary and respiratory tracts will be dealt with; and on Oct. 26th he will demonstrate the distinction between congenital and acquired forms of true hernia. On Oct. 15th, at 5 P.M., Prof. S. G. Shattock will show specimens illustrating necrosis, on Oct. 22nd those illustrating arteries; and on Oct 29th actinomycosis and madura disease.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following scholarships have been awarded:—Open Scholarship in Arts: Mr. W. S. Baxter, Foyle College, Londonderry, and Mr. J. W. Crow, Charterhouse, £50 each. Scholarships for University Students: War Memorial Scholarship, Mr. D. Lurie, Oxford, £80; Open Scholarship, Mr. W. D. B. Read, Oxford, £80. Scholarships in Junior Science: Confined Scholarship, Mr. E. T. Conybeare, Plymouth College and Guy's, £100; Open Scholarship, Mr. R. E. Fossey, Brighton Grammar School and Guy's; E. M. Sharples, Queen's College, British Guiana, £50 each.

Guy's Hospital Dental School.—War Memorial Scholarship in Arts: D. C. Buckley, King's College, London, and Guy's; W. P. Roe, University College School, £20 per annum each for four years. Junior Science Scholarship: F. S. Warner, Guy's, £20 per annum for two years; N. C. Yendell, Clifton College and Guy's, £20 per annum for three and a quarter years.

ST. GEORGE'S HOSPITAL.—The annual dinner of the School and Hospital was held on Oct. 1st at the New Metropole Hotel, when Mr. E. B. Turner presided over a representative body of guests. The occasion was taken by the chairman and Lord Greville, the hon. treasurer of the Hospital, to tell the audience in straightforward and simple fashion the present position of affairs at the Hospital, especially in reference to the school. The note of Mr. Turner's speech was the necessity of an intimate connexion at a hospital like St. George's between the charitable and clinical work and the educational institution. The Dean of the Hospital, Dr. J. A. Torrens, in a quietly humorous speech, accented the points made by showing the recent progress in numbers of the school, the very high level of examinational successes, and by alluding pointedly to the reappearance of St. George's again in the athletic arena. Lord Greville said that the Governors of the Hospital had under immediate consideration many things for the improvement of the institution both as a hospital and a teaching school, though the difficulty of raising money at the present moment compelled them to go slowly, but all present who knew their institution were delighted to hear that the first of these schemes was likely to be a large rearrangement of the out-patient department. The treasurer pointed out that although the Hospital is placed on what is probably the most expensive residential site in London it possesses the houses adjoining the present building, so that the most difficult preliminary in the extension of public buildings—namely, the acquisition of the surrounding land, is obviated. Amusing speeches from Sir George Turner, consulting surgeon to the Hospital, and Sir Malcolm Morris, replying for the guests, brought a pleasant evening to a conclusion.

THE annual Harveian commemoration dinner of the Royal College of Physicians of London will be held at the College on Oct. 18th, at 7.30 P.M.

THE chairman and members of Council of the British Medical Association with their guests will dine at the Hotel Victoria (Edward VII. Room), London, on Wednesday, Oct. 24th, at 7 for 7.30 P.M.

THE old students' dinner of St. Thomas's Hospital, London, will be held at the Princes' Restaurant, Piccadilly, on Friday, Oct. 26th, at 7 for 7.30 P.M., Mr. W. H. Battle in the chair.

THE dinner of the Chelsea Clinical Society will take place at the Café Royal, Regent-street, London, on Oct. 30th, at 7 for 7.30 P.M. The hon. secretary is Dr. P. Seymour Price, 41, Sloane-gardens, S.W. 1.

WESTMINSTER HOSPITAL.—The annual dinner of past and present students of Westminster Hospital wa held at the Trocadero Restaurant on Oct. 4th, Mr. Walte Spencer, the senior surgeon, in the chair. In giving the toas of the Hospital and Medical School he reminded his audienc that Westminster had now entered on its third century o existence in the neighbourhood in which it was founded. The voluntary system had persisted throughout, and ther was, he felt sure, every prospect of a continuance if the appea shortly to be made to meet the cost of rebuilding wa successful. The new building would have 235 beds, wit new special departments, operating theatres, and improvements of every necessary kind. In giving the toast, Mr Spencer coupled with it the name of Dr. A. S. Woodwark Dean of the Medical School. Dr. Woodwark, in his reply described the condition of the school as satisfactory in ever way. Each year since the war had witnessed a stead increase in the number of students, a succession of examina tion pass lists which compared well with those of any othe medical school in the metropolis, and a gradual return t pre-war conditions as regards social and athletic activiti Sir James Purves-Stewart proposed The Universities, an in their replies Sir Archibald Garrod gave a résumé of th relation of biochemistry to clinical practice, and Sir Cliffor Allbutt drew an optimistic picture of the possibilities an opportunities open to those who preferred to devote themselves to the more academic side of their profession. Mr H. J. Waring and Prof. David Hepburn also responded Mr. William Turner proposed The Past and Present Student adding that this, generally the most popular toast of th evening, was on this occasion superseded by that of th chairman to come later, to whose retirement he referred i sympathetic terms. He coupled with the toast the name of Dr. Robert Nimmo Watson, who had most patriotical come all the way from Harrogate, and Mr. R. A. Hicklin Dr. Watson voiced the sentiments of the men in genera practice, who had known Mr. Spencer throughout the whol of their career, and had found every year more reasons t express their gratitude. Mr. Hickling, representing th present students, said that the only thing to complete the satisfaction would be the provision of an athletic ground their own. Mr. Arthur Evans, in proposing The Visitor coupled with the toast the name of the Rev. Harold Costle White, Headmaster of Westminster School; in respons Mr. Costley-White stated that as a school master he ha always felt that for a medical career a boy required a ver early preparation, psychically as well as academicall

Dr. F. de Havilland Hall, with many affectionate references, proposed The Chairman, his old colleague, now retiring from the staff of the hospital which he had served so loyally for 35 years. Mr. Spencer briefly replied.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—The annual dinner will be held at the Hotel Cecil, Strand, London, W.C., on Oct. 19th. The President, Dr. T. W. Naylor Barlow, and Mrs. Barlow will receive the guests at 7.10 P.M., and dinner will be served at 7.30. Amongst those who have already accepted invitations are the Minister of Health, Sir Arthur Robinson, Sir Humphry Rolleston, Lord Riddell, Sir George Newman, Sir Dawson Williams, Mr. Justice Swift, and Sir Squire Sprigge. Members are asked to give early notice to the executive secretary at 1, Upper Montague-street, Russell-square, London, W.C. 1, of their intention to be present. Tickets 12*s.* 6*d.* each.

PRINCE OF WALES HOSPITAL.—The annual dinner of the Reunion Association will be held at Pagani's Restaurant, Great Portland-street, London, W., on Nov. 8th, at 7.30 for 8 P.M. The chair will be taken by Dr. George Chappel. The price of the dinner will be 12*s.* 6*d.* (exclusive of wine) for members and their guests. The secretaries are Dr. Jenkins Oliver, 1, Devonshire-place, London, W. 1, and Mr. S. O. Rashbrook, 7, Wellesley-road Chiswick, London, W. 4.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—The annual dinner of past and present students was held in the Connaught Rooms on Oct. 1st, when Mr. V. Warren Low presided over a large and representative gathering. Among the guests were the Vice-Chancellor of the University of London, the Director-General of the Royal Naval Medical Service, the Director-General of the Royal Army Medical Service, and the Mayor of Paddington. In proposing the toast of the Hospital and Medical School, Mr. Warren Low, who had a great reception, recalled the many distinguished men who had helped to build up St. Mary's, and expressed the opinion that 80 years was a very good kind of age for a medical school to be. Replying for the hospital, Mr. A. R. Prideaux, chairman of the board of management, was able to give a satisfactory account of the financial position of the hospital, a happy state of affairs due in no small part to the cordial coöperation between the staff of the hospital and the lay members of the board. Dr. C. M. Wilson, the Dean, gave an equally cheerful account of the position of the medical school. Though the entries at medical schools throughout the country showed signs of falling, the numbers at St. Mary's were higher than they ever had been. By arrangement with Queen Charlotte's Hospital, St. Mary's students now attended there for a period of instruction in midwifery, and this, combined with the facilities already afforded by the labour wards and the large district served by St. Mary's, made the teaching in this branch of the curriculum beyond reproach. In other respects, notably in the class of the primary Fellowship examination, academic achievement reached a high level, and there was a welcome vigour in athletic circles. A pleasant episode was the brief and happy speech of Dr. Milner-Moore, the doyen of St. Mary's men, who attended the inaugural dinner in the early "sixties." The official proceedings closed with the toast of the chairman, proposed by Mr. Herbert Waring and received with musical honours.

MEDICAL DEFENCE UNION.—The annual general meeting was held at the Royal Hotel, College Green, Bristol, on Sept. 29th, Sir Charles Ballance, the President, occupied the chair. In moving the adoption of the annual report of the Council for the year 1922–23, the President said that he was glad to be able to congratulate the members upon the continued expansion and satisfactory progress of the Union. On only one previous occasion had the annual meeting been held in Bristol, and that was 14 years ago. At that time the membership was approximately 7700. Now it was over 10,700. The income of the Union then was only a little over £4000. Now it was over £10,000, and with this improvement in the financial position the Union was able to do far more for its members than formerly. Every additional member meant greater protection for all, and medical practitioners should realise that in joining the Union they were not only protecting their own interests, but were doing something for others. The report showed that one noticeable feature of the last few years had been the increase in the number of women members. Over 400 women doctors have now joined the Union, three women are on the Council, and their advice has been helpful in many cases. Efforts have recently been made to induce the Union to make some concession to members of the British Medical Association, but the Council had declined to make any differential treatment. Both the Union and the London and Counties Medical Protection Society felt that they were mutually concerned in maintaining complete independence, and with a view to the promotion of good feeling, and, where necessary, coöperation, a standing joint committee, consisting of representatives of each society, had been constituted and would meet at regular intervals.

The transfer to the new offices in Bedford-square has been effected without any interruption to work and the change is much appreciated. In view of the higher costs of litigation, the Council has thought it prudent to raise the amount of the insurance indemnity after Jan. 1st next to £3000, the improved financial position of the Union enabling the Council to provide the additional cover without any increase in the annual subscription to the Union. The President specially pointed out that charges of negligence and malpraxis against medical practitioners were no less frequent to-day than formerly. By far the greater number of the allegations which doctors were called upon to meet were a mere pretext for evading the payment of professional accounts. He could not conceive how anyone engaged in active practice could be so foolish as to refuse to avail himself of the protection which an organisation such as the Medical Defence Union afforded. He regarded membership of a Defence Society as equally important with registration as a medical practitioner, and was glad to find that the newly qualified were joining the Union in increasing numbers.

The annual report of the Council and the statement of accounts were adopted. Dr. M. Hallwright, Dr. W. Rigden, and Dr. H. Robinson were re-elected members of the Council. On the recommendation of the Council the following resolution was unanimously adopted :—

> That the Council of the Medical Defence Union, having full discretion under the Articles of Association as to the cases which it shall undertake on behalf of a member, shall have full discretion in any case in connexion with divorce proceedings to withhold or partially withhold the indemnity insurance afforded to members in respect of damages and costs of the other side which may be awarded against them.

A hearty vote of thanks was accorded to the President and Council for their services during the past year.

The Council, at its meeting on Oct. 4th, unanimously appointed Mr. Walter G. Spencer President of the Union for the ensuing year.

SOCIOLOGICAL SOCIETY.—A course of six lectures on the Bearing of Psycho-Analysis upon Sociological Problems will be held at Caxton Hall, on consecutive Tuesdays, at 8.30 P.M. The introductory lecture was delivered by Dr. Ernest Jones on Oct. 9th. Subsequent lectures will be given by Dr. James Glover, Mr. J. C. Flugel, Dr. M. D. Eder, Miss Barbara Low, and Miss E. Sharpe. Further particulars may be obtained from the Secretary, Psycho-Analytical Lecture-Course, Leplay House, 65, Belgrave-road, Victoria, London, S.W. 1.

HUNTERIAN SOCIETY.—The programme of the Society for the session 1923–24 is briefly as follows : Oct. 22nd, dinner meeting at Simpson's Restaurant, Cheapside ; presidential address by Sir H. E. Bruce Bruce-Porter on the Pitfalls of Medical Practice. Nov. 19th, at Cutler's Hall, discussion on Medicine and Letters, opened by Mr. W. B. Maxwell. Dec. 17th, dinner meeting at Simpson's Restaurant, Cheapside ; discussion on the Influence of Ductless Glands in Infancy, Middle, and Old Age, by Drs. Langdon Brown, J. H. Thursfield, Leonard Williams, and Crichton Miller. Jan. 14th, at the Mansion House, Hunterian lecture on Infections of the Urinary Tract due to the *B. coli communis*, by Sir John Thomson-Walker. Feb. 12th, annual dinner at the Langham Hotel. March 3rd, at the Mansion House, Hunterian oration, Changing Standpoints in Cardiac Medicines, by Sir Sydney Russell-Wells. March 24th, dinner meeting; paper on Rheumatics, by Dr. F. J. Poynton. Aprll 14th, annual general meeting.

HEALTH WEEK.—The Health Week Committee appointed by the Royal Sanitary Institute have been conducting an extensive campaign, which finished this week, with the object of impressing on the public the need of an intelligent understanding of the principles of health and hygiene in ameliorating the distresses of our time. The ordinary man knows in his heart that unless our civilisation keeps us healthy it is of no use, and that the one great cause of disease is ignorance. As knowledge has spread during the last 50 years, so has the expectation of life increased, but as yet the national health and physique is far from the ideal. It is believed that the death-rate of the country could be reduced by 40 per cent. if the knowledge now existing among well-informed men in the medical profession were actually applied in a reasonable way and to a reasonable extent. The Public Health Committee of the West Riding County Council, under the direction of the county medical officer, have been conducting a vigorous health propaganda among school-children. Addresses have been delivered in the schools by some 142 medical practitioners, who have consented to give their services voluntarily. Leaflets of an attractive and interesting nature have been widely distributed among the scholars to encourage habits of cleanliness, and to create an interest in the care of the body.

A paragraph from the "Scholar's Health Creed" runs: "I believe that my individual and personal effort is even more necessary than the help of the sanitary authorities or the medical officer of health in producing a high standard of health in the community, for I am indeed 'my brother's keeper.'" The press and the pulpit have coöperated in the work, while a series of 24 lectures has been arranged by the county council for the coming winter.

London Dermatological Society.—A general meeting of the Society will be held at 4.30 p.m. on Oct. 16th at St. John's Hospital, 49, Leicester-square, W.C. At 5.15 p.m. Dr. A. Knyvett Gordon will read a paper on the Clinical Value of Biochemical Tests in Dermatology.

Institute of Hygiene.—A series of lectures upon Food and Diet will be delivered at the Institute of Hygiene on Tuesdays, at 3.30 p.m., beginning on Oct. 16th, when Mr. Grant Ramsay will lecture on Foods, Feeding, and Efficiency.

Donations and Bequests.—Colonel Hubert Alfred Johnson, of Allestree, Derbyshire, and Bradford Iron Works, Manchester, who for some years commanded the 4th Manchesters and who saw service during the war, bequeathed £500 each to the Derbyshire Royal Infirmary, the Derbyshire Hospital for Sick Children, the National Society for the Prevention of Cruelty to Children, the Royal Society for the Prevention of Cruelty to Animals, the Ancoats Hospital, and Ardwick and Ancoats Dispensary, Manchester.

Fellowship of Medicine and Post-Graduate Medical Association.—A special intensive course in Proctology will be given at St. Mark's Hospital, City-road, from Oct. 15th to 27th, and will include clinical lectures and demonstrations in the wards and out-patient department each day by the members of the staff. A short course in Dermatology will also be held at the Hospital for Diseases of the Skin, Blackfriars, from Oct. 29th to Nov. 10th, and the next fortnight's "refresher" course in General Medicine and Surgery will be given by the Royal Northern Hospital in conjunction with the Central London Ophthalmic Hospital, the North-Eastern Fever Hospital, and the Royal Chest Hospital from Nov. 5th to 17th. There will also be further special courses during November on Children's Diseases at the Children's Clinic, Western General Dispensary; Gynæcology at Chelsea Hospital for Women; Ophthalmology at the Royal Westminster Ophthalmic Hospital; Psychological Medicine at the Maudsley Hospital; and on Venereal Disease at the London Lock Hospitals. Full particulars and copies of the syllabus of the above courses can be obtained from the Secretary to the Fellowship of Medicine, at 1, Wimpole-street, W. 1. As in some cases the number attending the courses is limited, early application should be made.

Medical Sickness, Annuity, and Life Assurance Society.—The annual report of the Society for the year ending June 30th, 1923, states that the number of sickness and accident fund policies issued was 353 for annual premiums of £4504. Sickness claims paid amounted to £19,072. The total of the fund at close of the period was £245,336. Life assurance policies numbered 119, assuring £78,450 less re-assurances of £500, net £77,950, for net annual premiums of £2901 and single premiums of £219. Claims paid totalled £1434. The total premium income of the Society amounted to £47,043. The expenses of administration were £7158, being 15·4 per cent. of the premium income. The rate of interest earned was £4 13*s.* 8*d.* per cent. gross, and £3 14*s.* 6*d.* per cent. after deduction of tax. The two funds have increased by £8486, and amount, after transferring £3000 to the reserve fund and £2000 to the staff pension fund, in accordance with the resolution passed at the annual meeting, Oct. 2nd, 1922, to £349,230.

Newcastle-upon-Tyne and Northern Counties Medical Society.—The first meeting of the session was held in the Royal Victoria Infirmary on Oct. 4th. Dr. R. Esmond Moyes, the President, was in the chair, and about 100 members were present. A large number of medical and surgical cases were demonstrated by the following members: Prof. W. E. Hume, Drs. George Hall, G. A. Berkeley Cole, S. Whateley Davidson, J. C. Spence, Prof. H. Brunton Angus, Messrs. Hamilton Drummond, W. A. Hewitson, H. Harvey Evers. A series of pathological specimens from the museum of the University of Durham College of Medicine was arranged by Mr. W. E. M. Wardill, the curator. The Society meets monthly during the winter session, and in addition to the ordinary meetings two clinical and pathological meetings have been arranged for the convenience of country members, at 4.30 p.m., on Oct. 24th and Jan. 23rd, 1924. The annual address and dinner will take place on Dec. 6th. On Feb. 7th, 1924, an address will be delivered by Dr. Hugh Thursfield, London, and on March 6th a discussion will be opened by Dr. Leith Murray, Liverpool, on Cæsarean Section, its History, Indications, and Limitations.

Medical Diary.

Information to be included in this column should reach in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 16th.

GENERAL MEETING OF FELLOWS: at 5 p.m.
Ballot for election to the Fellowship. (Names already circulated.)

PATHOLOGY: at 8.30 p.m.
Papers:
Dr. James Young: Further Observations on the Ætiology of Malignant Disease and the Leukæmic Phenomena.
Dr. E. H. Kettle: Experiments with "Defatted" Tubercle Antigen.
Dr. J. Freeman: Pollen Antigen prepared by Dreyer's Method.
Dr. E. E. Atkin: Cultural Characteristics of the Different Types of Meningococci.

Wednesday, Oct. 17th.

HISTORY OF MEDICINE: at 5 p.m.
Paper: Dom Louis Gougaud, O.S.B.: Phlebotomy in the Monasteries.

Thursday, Oct. 18th.

DERMATOLOGY: at 5 p.m. (Cases at 4.30 p.m.)
Cases:
Dr. H. MacCormac: Erythematous Lupus with Hypodermic Nodes.
Dr. H. W. Barber: (1) Prurigo Nodularis; (2) Macular Atrophy; (3) Persistent Streptococcal Impetigo.
At 8.30 p.m., Special Evening Meeting.
Paper:
Dr. J. A. Fordyce (Columbia University): Results of Treatment in Syphilis of the Nervous System.

Friday, Oct. 19th.

ELECTRO-THERAPEUTICS: at 8.30 p.m.
Presidential Address:
Dr. W. J. Turrell: Electrical Energy as a Curative Agent

THE ROYAL SOCIETY OF TROPICAL MEDICINE AN HYGIENE, 11, Chandos-street, Cavendish-square, W.
Thursday, Oct. 18th.—8.15 p.m., Opening Meeting of th Session, Surgeon Rear-Admiral Sir Percy Bassett Smith, K.C.B., C.M.G., President, will deliver hi inaugural address. The meeting will be preceded by Demonstration at 7.45 p.m., of the Development of th Malaria Parasite in the Mosquito.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, WEST LONDON HOSPITAL Hammersmith, W.
Monday, Oct. 15th.—10 a.m., Mr. Maingot: Surgica Pathology. 12 noon, Mr. Simmonds: Applied Anatomy 2 p.m., Mr. Simson: Diseases of Women.
Tuesday.—10 a.m., Mr. Steadman: Dental Department 12 noon, Dr. Burrell: Chest Cases. 2.30 p.m., Mr Tyrrell Gray: Surgical Wards.
Wednesday.—10 a.m., Dr. Saunders: Medical Diseases o Children. 12.15 p.m., Dr. Burnford: Medical Pathology 2 p.m., Dr. Pernet: Skin Department.
Thursday.—10 a.m., Dr. Grainger Stewart: Neurologica Department. 12 noon, Mr. Simmonds: Demonstratio of Fractures. 2 p.m., Mr. MacDonald: Genito-Urinar Department.
Friday.—11 a.m., Dr. McDougal: Electrical Department 12 noon, Dr. Endean: Venereal Diseases. 2 p.m. Mr. Sinclair: Surgical Out-patients.
Saturday.—10 a.m., Dr. Saunders: Medical Diseases o Children. 10 a.m., Dr. Burnford: Medical Ward 10 a.m., Mr. Banks-Davis: Operations on the Throa Nose, and Ear.
Daily, 10 a.m. to 6 p.m., Saturday 10 a.m. to 1 p.m., I patients, Out-patients, Operations, Special Depar ments.

NATIONAL HOSPITAL FOR DISEASES OF THE HEAR Westmoreland-street, Marylebone, W. 1.
(Special Two Weeks' Intensive Course in Cardiology. Mornin 10 and 11.15 a.m.; afternoons 2 and 3 p.m. Saturday in the forenoon only.)
Monday, Oct. 15th.—Dr. B. T. Parsons-Smith: T Anatomy of the Heart. Dr. J. Strickland Goodal X Ray Examination of the Heart. Dr. R. O. Moon Ward Demonstration. Dr. J. Strickland Goodal Out-patients.
Tuesday.—Dr. P. Hamill: The Physiology of the Circula tion. Sir S. Russell-Wells: Sphygmomanometers a Arteriometers. Dr. F. W. Price: Ward Demonstr tion. Sir S. Russell-Wells: Out-patients.
Wednesday.—Dr. John Parkinson: The Uses of t Polygraph. Dr. F. W. Price: Cardiac Arrhythmia Dr. H. B. Weir: Pathological Demonstration. D R. O. Moon: Out-patients.
Thursday.—Dr. John Parkinson: The Uses of the Pol graph. Sir S. Russell-Wells: Angina Pectoris. D J. Strickland Goodall: Ward Demonstration. D F. W. Price: Out-patients.

FRIDAY.—Dr. B. T. Parsons-Smith: The Electro-Cardiograph. Dr. R. O. Moon: Mitral Stenosis. Dr. John Parkinson: Ward Demonstration. Dr. John Parkinson: Out-patients.

SATURDAY.—Dr. P. Hamill: Ward Demonstration.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 15th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Subacute Combined Degeneration: Dr. James Taylor.

TUESDAY, Oct. 16th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Disseminated Sclerosis and its Treatment: Dr. Risien Russell.

THURSDAY, Oct. 18th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Magnus and de Kleijn Reflexes in Man: Dr. Walshe.

FRIDAY, Oct. 19th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Myelitis: Dr. Collier.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Oct. 15th.—12 noon, Cerebro-spinal Fluid Pathology: Dr. J. Godwin Greenfield.

A COURSE of LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will commence on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s*. The fee for the Anatomy and Physiology Lectures will be £3 3*s*., but this Course will only be given if six or more entries are received. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7*s*. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 18th.—4 P.M., Dr. Paterson: Convulsions in Infancy and Childhood.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL. (At 3.30 P.M. each day.)

MONDAY, Oct. 15th (at the Hospital for Women).

TUESDAY (at the Maternity Hospital).—Dr. Willett: Primigravida.

WEDNESDAY (at the St. Paul's Eye Hospital).—Mr. Stevenson: Ophthalmia Neonatorum.

THURSDAY (at the St. George's Hospital).

FRIDAY (at the Eye and Ear Infirmary).—No lecture.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 16th.—4.15 P.M., Dr. W. Dyson: Erythematous and Bullous Eruptions of the Skin.

FRIDAY.—4.15 P.M., Dr. F. Craven Moore: The Modern Conception and Investigation of Dyspepsia.

SALFORD ROYAL HOSPITAL.

(Special Course on Surgical Tuberculosis.)

THURSDAY, Oct. 18th.—4.30 P.M., Mr. G. Wright: The Surgery of Pulmonary Tuberculosis.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

MONDAY, Oct. 15th.—5 P.M., Dr. A. Blackhall-Morison: The Progress of Neurology, Psychology, and Psychiatry during the Century since the Foundation of the Lectureship.

TUESDAY.—Second Lecture.

WEDNESDAY.—Third Lecture.

Appointments.

DILLON, F., M.D. Edin., has been appointed Medical Superintendent of Northumberland House Private Mental Hospital.

HURRELL, G., M.B., B.S., D.P.H., B.Hy. Durh., Assistant R.M.O., City Hospital, Walker Gate, Newcastle-on-Tyne.

Manchester, Whitworth-street West Hospital: **BAILEY, K. V.**, M.B., Ch.B. Manch., **GERAGHTY, W.**, M.B., Ch.B. Manch., **BACON, W. B.**, and **FILDES, W. E.**, House Surgeons. High-street Hospital: **HULME, J. W.**, M.R.C.S., L.R.C.P. Lond., and **BEGG, ELSIE C.**, M.B., Ch.B. Manch., House Surgeons. St. Mary's Hospitals: **GRANT, MARJORIE A.**, Assistant Medical Officer for Children Out-patients.

Certifying Surgeons under the Factory and Workshop Acts: **IVATTS, E. R.**, M.R.C.S., L.R.C.P. Lond. (Cerrig-y-Druidion, Denbigh); **COURTS, A. C. S.**, M.D., B.S. Lond. (Staveley, Derby).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—H.S. £150.

Bethlem Hospital, Lambeth-road, S.E.—Two Res. H.P.'s.

Birmingham, Queen's Hospital.—Path. £100.

Bradford Royal Infirmary.—Hon. Asst. S.

Cape Town University.—Wernher-Beit Prof. of Bacteriology.

Cardiff, King Edward VII. Welsh National Memorial Association.—Second Asst. R.M.O. £250.

City of London Hospital for Diseases of the Heart, Victoria Park, E.—H.P. £125.

City of London Mental Hospital, near Dartford, Kent.—Second Asst. M.O. £350.

Denbighshire County Council.—Asst. M.O.H. £600.

Dumfries, Crichton Royal.—Asst. P. £350.

Durham County Council Education Dept.—Asst. School M.O. £600.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—R.M.O. £200. H.S. £125. Radiologist. £100. Dermatologist.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Asst. Radiologist. £50 to £100.

Gloucestershire Royal Infirmary.—Hon. Anæsth. Two Hon. Dental Surgeons.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. Also Res. M.O. £500.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Res. M.O. and H.P. £150 and £100 respectively.

Italian Hospital, Queen-square, W.C.—Hon. Ophth. S.

Leeds Public Dispensary.—Sen. Res. M.O. £200.

Leicester Royal Infirmary.—H.S. £150.

London County Mental Hospital Service.—Seventh Asst. M.O. £432.

Manchester Hospital for Consumption and Diseases of the Throat.—Hon. Asst. Phys.

Manchester Royal Infirmary.—Female Asst. Res. M.O. £100.

Manchester, St. Mary's Hospitals.—H.S. £50.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S., Jun. H.P., and three Jun. H.S.'s. Each £100.

National Dental Hospital, Great Portland-street, W.—Hon. Anæsthetist.

Poplar Parish.—Dist. M.O. £200.

Portsmouth Workhouse Infirmary, &c.—Second Asst. Res. M.O. £425.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. S. to Ear, Nose, and Throat Dept.

Richmond Royal Hospital, Surrey.—Asst. H.S. £100.

Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £150.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Clin. Assts. £105.

Royal Northern Hospital, Holloway, N.—H.P. and H.S. Each £75.

St. Helens County Borough.—Asst. M.O. £600. Also Asst. M.O.H. £450.

St. Mary, Islington, Infirmary, Highgate Hill.—Asst. Med. Supt. £500.

St. Pancras Hospital, Pancras-road, N.W.—Female Asst. M.O. £350.

Sheffield Union Hospital.—Res. Asst. M.O. £250.

Staffordshire General Infirmary, Stafford.—H.S. £200.

Talgarth, Breconshire, Mid Wales Counties Mental Hospital.—Asst. M.O. £350.

University College Hospital, Gower-street, W.C.—Hon. Asst. in Ear, Nose, and Throat Department.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Temp. Physician to Out-patients.

West Hartlepool, Cameron Hospital.—H.S. £200.

York County Hospital.—Res. M.O. £150.

Births, Marriages, and Deaths.

BIRTHS.

HOLMES.—On Oct. 5th, at Wimpole-street, W., the wife of Gordon Holmes, C.M.G., M.D., of a daughter.

JEX-BLAKE.—On Sept. 13th, at Kyuna, Nairobi, Kenya Colony, to Lady Muriel and Dr. A. J. Jex-Blake—a daughter.

PENDERED.—On Oct. 1st, at West End, Hants, the wife of J. H. Pendered, M.D., F.R.C.S., Southampton, of a son.

STANLEY.—On Oct. 5th, at Rue des Belles Feuilles, Paris, the wife of E. Gerald Stanley, M.S., F.R.C.S., M.D., of a daughter.

MARRIAGES.

GALBRAITH—BOWEN-JONES.—On Oct. 1st, at St. George's, Beckenham, Captain Douglas Hugh Aird Galbraith, *M.C.*, M.R.C.S., L.R.C.P., to Hannah Bowen-Jones, R.R.C., only daughter of Mrs. Bowen-Jones, of Conwil, Carmarthenshire.

LITTLE—FORRER.—On Oct. 3rd, at St. Barnabas Church, Kensington, Captain Joseph Pearson Little, R.A.M.C., to Alice Cleopatra, younger daughter of Mr. and Mrs. Jefferson Forrer, of Alexandria, and niece of the late Henry Forrer, Liverpool.

PATERSON—MURPHY.—On Sept. 27th, at the British Consulate, Cairo, Dr. T. W. S. Paterson, M.A., M.B. Camb., Barrister-at-Law, Middle Temple, to Mrs. E. H. Murphy.

DEATHS.

KEEN.—On Oct. 2nd, at St. Leonards-on-Sea, William Keen, M.D., of Oakley-street, Chelsea, S.W.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE HISTORY OF A SURGICAL SOCIETY.

In 1872 Bernard v. Langenbeck, Gustav Simon, and Richard Volkmann conceived the idea of forming a surgical society with an annual congress of three to four days' duration. The idea was announced to a number of German surgeons by means of a circular letter, with the result that in April, 1872, the first meeting was held under the presidency of v. Langenbeck, a post which he held with distinction until 1886, a year before his death. Victor v. Bruns was elected as vice-president, Volkmann and Gurlt as secretaries, and Friedrich Trendelenburg as treasurer. Dr. Trendelenburg has now collected,[1] summarised, and edited the reports of the meetings of this Deutsche Gesellschaft für Chirurgie during the first 25 years of its existence. Personal reminiscences of the parts played by himself and others add greatly to the interest of the book. Baum, Bardeleben, Billroth, and Simon formed the first committee. Although it was to Simon that the credit was given of originating the idea, and it was to him and his untiring efforts that the success of the scheme was due, his inability to speak publicly, "schwätzen" as he called it, prevented him from taking so prominent a place at the meetings as Langenbeck or Volkmann.

By dividing the subject-matter into the obvious headings, Dr. Trendelenburg traces for us the development of surgical thought and practice in its various branches during the first 25 years following the formation of the society, and we are shown the phases and vicissitudes through which new scientific ideas fought their way to acceptance or rejection. The account of the views that were held on septic wounds and compound fractures in military and civil practice forms fascinating reading. "Everyone is agreed," said Pirogoff, "that pus formation in gunshot wounds is unavoidable." If a gunshot fracture healed with only slight suppuration, without extrusion of a sequestrum, it was assumed that the case was one of simple fracture without splintering, for as Simon maintained, if a compound fracture was present, infection invariably took place and led to death in a few weeks. The sensation caused by Lister's theories and the resistance to them, the advent of antiseptics and the antagonism to these, and the occurrence of iodoform poisoning, are all reflected in the discussions held by the society. The debate in 1892 on local versus general anæsthesia, or rather the abrupt cessation of the debate must have long remained vivid in the minds of all those who were present. Schleich opened the discussion advocating strongly on humanitarian and moral grounds the universal use of local anæsthesia. When he ceased speaking Bardeleben jumped to his feet, "his clear-cut face flushed with anger, surrounded by his waving white beard," and with an excited voice said, "Gentlemen, we do not vote in our society, but when anything is said such as the last sentence of the last speaker, we are at liberty to speak out our opinion. . . . I ask those who are convinced of the truth of what the last speaker has said to hold up their hands. Gentlemen, no hands are raised. . . . Will those who wish for a discussion hold up their hands. No hand is raised. There is, therefore, no discussion." Compare this position with that held to-day, when in most of the continental hospitals 70–80 per cent. of all operations are carried out under local anæsthesia.

The history of blood transfusion well repays perusal. The blood was thought at one time to influence the psychology of the individual, and Elsholz in 1667 suggested that transfusion of the blood from a choleric personality might correct the temperament of a phlegmatic, and that an unhappily married couple might be brought into harmony by reciprocal blood transfusion! The chapter on the surgery of the gall-bladder illustrates how gradually surgery has advanced since that time. Cholecystectomy versus cholecystotomy was discussed as freely then as now, and who can say when the questions will be settled? But we have progressed since the days of humeral pathology, when hæmorrhage from the rectum due to hæmorrhoids was looked upon as similar to menstruation—a "charitable gift of nature." To those interested in the history of surgery this book should appeal.

THE PROTECTION OF THE GAS CONSUMER.

On Oct. 1st was published the last of three special supplements to the *Manchester Guardian*, which between them cover all aspects of the gas industry. The first issue, which appeared on Sept. 10th, included an historical survey and a section devoted to coal and coal conservation; the second issue, dated Sept. 24th, was devoted to manufacture and distribution of gas, and smoke abatement and public health. The third issue relates to the practical application of gas in modern civilisation, and to the economics and organisation of the industry; it also contains a brief summary of "the four chief safeguards by which gas consumers are protected against possible underhand dealing." These are as follows:—

1. *Parliament.*—Suppliers of gas are not at liberty to change the quality of their gas except in accordance with Parliamentary statutes; nor may they alter the calorific value of the gas without adjusting appliances, if such adjustment be necessary to enable consumers to extract a maximum efficiency from the altered quality of the gas. (Such adjustment is usually unnecessary for altered calorific values within comparatively narrow limits—e.g., a change from 450 to 475, or from 475 to 500 British thermal units per cubic foot.) A sliding scale admits of higher dividends only when gas is cheapened, and prevents the shareholder in a gas company from profiting at the expense of the consumer.

2. *Board of Trade.*—No undertaking can benefit by the Gas Regulation Act (1920) except by receiving an order from the Board of Trade; and such an order is only issued after the Board is satisfied that its terms are in the consumer's interest.

3. *Official Testing.*—The calorific value of gas is carefully tested, frequently and without warning, by an officially appointed neutral party. The consumer is, therefore, paying only for heat supplied, because (*a*) a public authority certifies the maintenance of the declared calorific value of the gas; (*b*) his meter, tested and guaranteed by a neutral party, records the number of feet consumed; and (*c*) where gas is sold on the therm basis a simple calculation shows the number of therms contained in the number of cubic feet consumed—namely, multiplication of the number of cubic feet by the declared heating value, and division of the results by 100,000.

4. *Local Authority.*—Consumers, if dissatisfied, have the right, by Act of Parliament, to go to their local authority and demand that the Board of Trade be asked to revise the local standards.

THE MEDICAL WHO'S WHO.

This publication was suspended in 1918 on the death of its late editor. Begun in 1912 as a very modest volume of 300 pages, it grew through successive editions, all of which are out of print, to a substantial volume, and the Grafton Publishing Co., Ltd., Chichester House, Chancery-lane, W.C. 2, have now acquired the copyright, and will reissue the work on a revised plan. All registered practitioners will shortly receive a form to be filled up, which we are informed has been submitted to the General Medical Council. The new book of reference aims at blending the good features of the Medical Directory with those of "Who's Who," and if this is successfully accomplished the book should prove of value to the practitioner, and be of general use. The editor of the "Medical Who's Who" is appealing for an early return of the forms.

AN IMPROVED HAIR-BRUSH.

The advantages of a hair-brush which can be cleaned and sterilised at any moment by passing it through a spirit flame, by immersing it in boiling water, or by using disinfectants, are obvious, and these advantages are claimed for the Sindix All-metal Hair-Brush. It is made in two shapes, the military, and the ordinary handled form for the convenience of ladies. The "bristles" are made of fine-drawn, non-rusting wire, and the body of the brush is of aluminium and perforated with openings so that the cleansing or disinfecting fluid can pass freely through all parts of it. The makers are Sindix, Ltd., 5, John-street, Adelphi, London. W.C., and the price is 12*s.* 6*d.*

A BEE-STING ON THE UVULA.

An unusual accident occurring to a motor cyclist is recorded by Dr. C. W. Geiger and Dr. J. H. Roth in the *Journal* of the American Medical Association of August 25th. The victim was a youth into whose open mouth a bee flew while he was travelling presumably at some pace. After several attempts the insect was dislodged. Violent vomiting followed and attempts to gargle caused the pain to be worse. Six hours after the accident the patient had slight difficulty in speech, and considerable difficulty in swallowing. Examination of the pharynx showed extreme œdema of the uvula, which was about the size of a man's thumb, and of the pillars on the right side. Cocaine was applied to render examination possible; at the junction of the anterior pillar and the uvula the stinger of the bee was found and removed, silver nitrate (10 per cent.) was applied as an astringent; the patient was given a gargle of saturated solution of sodium bicarbonate to be used frequently and was soon relieved.

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[1] Die Ersten 25 jahre der Deutschen Gesellschaft für Chirurgie. By Friedrich Trendelenburg. Berlin: Julius Springer. 1923. Pp. 467. 10*s.*

The Harveian Oration

ON

THE WISDOM OF THE BODY.

)elivered before the Royal College of Physicians of London on St. Luke's Day, 1923,

3Y ERNEST H. STARLING, C.M.G., M.D. LOND., SC.D. (HON.) CAMB. AND DUB., M.D. (HON.) BRESLAU, DOCT. (HON.) STRASBURG, F.R.S.,
FOULERTON RESEARCH PROFESSOR OF THE ROYAL SOCIETY; FELLOW OF THE COLLEGE.

> "Who hath put wisdom in the inward parts?
> or who hath given understanding to the heart?"

MR. PRESIDENT AND FELLOWS OF THE COLLEGE,—t is customary and right in this our annual oration o begin by calling to mind the work of the founder imself, and especially the great discovery of the irculation of the blood, which represents the beginning and the foundation of all that we know in hysiology and medicine. Harvey's treatise on "The Iotion of the Heart" is throughout so modern in pirit, so akin in conception and treatment to records f research of the present day, that we may easily ail to appreciate the stupendous advance in human hysiology that it embodies, and may wonder that e have had to wait so long for the full fruition of Iarvey's discovery. But it must be remembered hat the ordered knowledge of the world around us, hether living or dead, which we call science, forms connected whole; and though, as its line advances, brilliant discovery may push one part of the line in dvance of the rest, such an outpost must remain nore or less in the air and incapable of further dvance until the whole line has moved up to its upport. We now know that many of the problems aised by Harvey, with the promise to himself and is readers of further consideration at a later date, epended for their solution on the progress of other ranches of human knowledge. And that is why o-day in our minds and memories we are reckoning mong our saints, not only the distinguished line of ellows of the College, but also men such as Boyle, Iayow, Hales, Cavendish, Lavoisier, Bernard, Pasteur, nd a host of others, who were only in spirit ur colleagues, and most of whom were not even tudents of medicine. Indeed, we might say that, luring the 200 years succeeding Harvey's work, the vhole scientific world has been travailing in order hat medicine might be born. Thus it is that our cience has had to wait until our own days for the ttainment of those ends which Harvey had in mind n his dream of the results of his discovery: "Finally, eflecting on every part of medicine, physiology, athology, semeiotics, therapeutics, when I see how nany questions can be answered, how many doubts esolved, how much obscurity illustrated, by the ruth we have declared, the light we have made to hine, I see a field of such vast extent in which I night proceed so far, and expatiate so widely, that his my tractate would not only swell out into a olume, which was beyond my purpose, but my whole fe, perchance, would not suffice for its completion."

In the new light shed by his great discovery, he robably failed to appreciate the extent of the dark hadows cast by the great clouds of ignorance which ad still to be dispersed. But the advance of knowedge, though slow at first, has progressed with ever ccelerating speed. When I compare our present nowledge of the workings of the body, and our owers of interfering with and of controlling those vorkings for the benefit of humanity, with the gnorance and despairing impotence of my student ays, I feel that I have had the good fortune to see he sun rise on a darkened world, and that the life of ny contemporaries has coincided, not with a renaisance, but with a new birth of man's powers over his nvironment and his destinies unparalleled in the vhole history of mankind. Not but there is still nuch to be learned: the ocean of the unknown still stretches far and wide in front of us, but for its exploration we have the light of day to guide us; we know the directions in which we would sail, and every day, by the coöperation of all branches of science, our means of conveyance are becoming more swift and sure. Only labour is required to extend almost without limit our understanding of the human body and our control of its fate.

HARVEY'S GREATEST GIFT TO THE WORLD.

Great as was the gift which Harvey gave to us in his discovery of the circulation of the blood, greater still was the method he taught us of formulating and solving the problems which we continually encounter in our endeavours to control disease. For countless ages mankind had learned slowly and painfully by experience. The more observant had from time to time noticed certain recurring sequences in the infinity of fortuitous phenomena continually presented to them, and as a result man had by slow degrees improved his lot and his powers over the forces of Nature. But how slow was the rate of progress. There is no evidence that the age-long duration of the period during which man had only sticks and stones to defend himself and to procure his food, the long delay in the discovery of the working of bronze and later of iron, are to be ascribed to any mental inferiority of those men as compared with those of the present day. What was lacking was the method. Mankind had advanced by fits and starts as the result of discoveries which were probably accidental, and these discoveries spread gradually along the lines of commerce and culture by imitation and the implicit copying of ritual. But with the realisation of the possibilities of the method of experiment—i.e., the creation and repetition of a chosen experience under controlled conditions, such as we find in its full development in Harvey's treatise—man came almost at a bound into the full use of the brain capacities which he had evolved during a long struggle for existence against the warring forces of an inclement nature.

It is true that the ultimate goal and the biological justification of science is the improvement of human conditions. But for the full and untrammelled exploitation of the advantages of the experimental method, it is essential that mere material advance shall not be the target of our ambition. This great secret of success in science was fully realised by Harvey when he enjoined us to search out, not the causes and cure of disease, but "the secrets of Nature, by experiment." This implies that we are to give free scope to the spirit of curiosity, with some measure of which every man, at any rate in his youth, is endowed. We ourselves are but part of the order of Nature, and all knowledge therefore is contributory to the science of medicine.

THE WORK OF THE HEART.

If this was the spirit that actuated Harvey, it is evident that his whole life would not have sufficed for the completion of the work opened up to him by his great discovery. Under its light he could see many summits to be attained and the beginnings of paths which must be followed. But long and arduous search was necessary before these paths could be traced out in their entirety. Thus the determination of the output of blood from the heart and the cause of its variations evidently seemed to Harvey a problem whose solution was ready to hand. He says: "The actual quantity of blood expelled at each stroke of the heart, and the circumstances under which it is either greater or less than ordinary, I leave for particular determination afterwards from numerous observations which I have made on the subject. Meantime, this much I know, and would here proclaim to all—that the blood is transfused at one time in larger, at another in smaller quantity; and that the circuit of the blood is accomplished, now more rapidly, now more slowly, according to the temperament, age, &c., of the individual, to external and internal circumstances, to naturals and non-naturals—sleep, rest, food, exercise, affections of the mind, and the like."

But many years had to elapse before we could give a quantitative expression both to the amount of blood expelled under normal conditions and to its variations, and explain the manner in which these variations are brought about. The Rev. Stephen Hales, second only to Harvey as an experimental physiologist, has only calculations based on measurements of the dead organ. The determination of the output in the living animal was first made in our own times, and it is only within the last ten years that methods have become available which reveal in man himself the quantity of blood leaving the heart in each unit of time, and therewith enable us to estimate the total work of this organ. Such methods have been devised by Krogh and by Haldane. If we accept the results of the former, we may say that in a normal man at rest each cavity of the heart expels about four litres per minute. During violent exercise when, as we know, the requirements of the body for oxygen may be increased tenfold, this quantity rises to 24 or even to over 30 litres (3 gallons) per minute. These figures convey only imperfectly the enormous rush of blood which is being effected by the heart under these conditions. An ordinary laboratory tap will deliver nothing like 30 litres per minute; to obtain this amount it is necessary to have recourse to a large tap such as that which is supplied to a bath. It means that the whole blood must pass through the heart and round the body every ten seconds, and complete the circulation of the body six times in every minute. And it must be remembered that the heart is putting out this colossal amount of blood against an arterial pressure which is higher than normal, and which may amount to 150 to 180 mm. Hg as against the 100 to 110 mm. which is the ordinary systolic pressure in the arteries of a resting individual.

We see, therefore, that the heart has a marvellous power of adapting its work and its performance in accordance with the needs of the body as a whole, and is fully deserving of the feeling of respectful admiration which inspires Harvey to speak of it as "the sun of the microcosm," "the household divinity," "the foundation of life," "the source of all action."

ITS POWER OF ADAPTATION.

To search out the intimate character of this power of adaptation is a problem almost as enthralling in interest as the demonstration of the circulation itself. It is easy to show that the increased output of blood from the heart during exercise is simply an expression of an increased inflow into this organ, the heart being so constituted that under normal conditions it will send on into the arteries all the blood that flows into it from the veins. Harvey probably had some inkling of this power when, in speaking of the action of the auricles, he ascribes to them the property of exciting a stronger contraction on the part of the ventricles, comparing the latter to the tennis player who can strike more forcibly and further if he takes the ball on the rebound.

In the intact animal a large number of processes, nervous as well as chemical, are involved in the increased contraction of the heart during muscular exercise. By the action of the central nervous system and of other physiological processes involved, the strain thrown on the heart is minimised, so that it can effect the increased work with the greatest possible economy of effort. But the intimate character of this power of adaptation is fully displayed only when we cut away the protective mechanisms, which are normally shielding the last citadel of life, and study the reaction of this organ when it is entirely isolated from the central nervous system and is reduced to the condition of a muscular pump with valves, working rhythmically and steadily in virtue of its own automatic powers.

We can make a "heart lung preparation," in which, the lungs being retained in connexion with the heart, the blood passing through this organ is kept properly aerated. The systemic circulation is, however, replaced by a system of elastic tubes passing to a venous reservoir, in which we can vary at will the inflow of blood into the heart, the arterial pressure (and therewith the resistance to the expulsion of blood from the left ventricle), and the temperature of the blood supplying the heart, while we can measure the pressures at any moment of time in all the cavities of the heart as well as the changes in volume of this organ. In such a preparation we find that, within very wide limits, the output of blood corresponds exactly to the inflow. Whatever is supplied to the heart on the venous side is expelled by it on the arterial side. And again, within very wide limits, whatever is the resistance to be overcome in the arteries, so long as we keep the inflow of blood constant, the output of blood by the left ventricle remains unaltered whether the pressure in the aorta be 40 or 200 mm. Hg.

We know now that the energy for all vital movements is derived ultimately from the food, and in each tissue from the oxidation of the constituents either of the tissue or of the blood circulating through it. It is possible in such an isolated heart to measure its respiratory exchanges, and so determine the extent of the oxidative processes responsible for the energy of the heart's contraction. We then find that the amount of oxygen, taken in by the heart and converted for the most part into carbonic acid, is proportional to the amount of work that the heart is set to do. The isolated heart is like the whole man—the harder he works, the greater are his respiratory exchanges. I am accustomed to compare the heart with an ideal motor-car which, without action on the part of the driver, would automatically admit more petrol and air when the resistance to the movement of the car increases—as, for instance, in going up hill.

THE LAW OF THE HEART.

The heart has thus the power of automatically increasing the chemical changes and the energy evolved at each contraction, in proportion to the mechanical demands made upon it, behaving in this way almost like a sentient and intelligent creature. But the cause of this power must lie in the muscular walls of the heart itself, and a study of the conditions under which it occurs and the concomitant changes in the heart has revealed the secret of its wonderful power. The solution is simple. We find that in the isolated heart every increased resistance to its contraction is associated with an increased diastolic volume of the cavity or cavities, which have to overcome the resistance. Putting the matter in another way, we may say that the larger the diastolic volume of a given heart, the greater is the force of the contraction which immediately ensues. The energy of contraction is therefore a function of the diastolic volume of the heart. Dilatation of this organ is not merely a pathological phenomenon, but is the means by which the heart achieves its purpose, and maintains an activity which varies with the needs of the organism for more or less blood.

In this relation we find also the secret of the power of compensation, such as occurs in cases of valvular disease and has been always a puzzle to pathologists. Injury, for instance, to an aortic valve, with the production of regurgitation, causes increased filling of the left ventricle at the following diastole, since this receives blood not only in the ordinary way from the pulmonary veins and left auricle, but also by a reflux through the damaged valve. The dilatation evokes an immediate increase in the force of the contraction, so that within a few beats the left ventricle sends on into the aorta the total amount of blood flowing into it during the preceding diastole, and the aorta receives sufficient blood not only to supply the body, but to make up for the amount leaking back through the damaged valve. The same reasoning applies to the compensation which occurs for any valve lesion, whether it be in the nature of a leak or of a stenosis, increased filling or increased resistance; and in an otherwise healthy individual, constant increase in work has, as a secondary result, increased growth and hypertrophy of the cardiac muscle, so as to make it fit to meet the abnormally greater demands throughout the life of the individual.

You will remember that Harvey insists on the ssentially muscular nature of the heart. “ It was not ithout good grounds,” he says, “ that Hippocrates in is book “ De Corde ” entitles it a muscle ; as its ction is the same, so is its function—namely, to ontract and move something else.” Increasing ilatation of the heart means greater length of its uscular fibres, so that we can express the law of the eart as a relation between length and energy ; the onger the muscle fibre, the greater the energy of its ontraction. In this form we find that the law of the eart is that of all muscular tissue, whether voluntary r involuntary. The Swedish physiologist Blix showed any years ago that the energy evolved in the ontraction of a frog's muscle was proportional to its nitial length, and A. V. Hill has proved that this olds good for the heat production during activity nd therefore for the total chemical changes which re responsible for the contraction and recovery of the uscle. So that in searching after the cause of the eart's power of adaptation, we are brought into the egion of final causes, in which we associate function ith structure, and see in muscular contraction the xpression of molecular changes occurring at the urface of longitudinal fibrillæ. Thus we bring ogether in one formula the sum total of our experinces with regard to the nature of excitation itself, evelopment of mechanical energy, and the chemical, lectrical, and heat changes which accompany muscular ontraction. We are still far from a complete undertanding of these matters, and still farther from any ossibility of reconstructing a muscle fibre. But he path, so far as we can see along it, seems to lead o no impassable barrier, and to promise a complete escription of the acts of excitation and contraction s molecular events occurring at surfaces.

THE LIMITS OF ADAPTATION.

Is there any limit to this power of adaptation ? n skeletal muscle, increasing the length of the muscle bres leads to an augmentation of the energy changes f contraction, succeeded later by a diminution as he muscle becomes overstretched. In the healthy ammalian heart the limits are set by the strength of he muscle fibres themselves. Freed from the periardium the heart goes on increasing the strength of s contraction with increasing dilatation until the uscle fibres are actually ruptured, and when the eart finally fails we find its substance beset with æmorrhages. In the body this overstrain of the heart prevented by the tough fibrous sac of the periardium. When the demand on the heart is so great at the heart dilates to the limits of the pericardium ny further dilatation and resultant increased rength of beat becomes impossible ; the output therere falls off, and in the whole animal this diminished utput results in defective supply of blood to the uscles and brain, giving rise often to fainting, and t any rate enforcing complete rest. Further tivity of the animal becomes impossible and the eart is automatically given less work to do, so that can recover, unless the increased activity of the imal and of the heart is a necessary condition of e animal's continued survival, as in a fight to the ath. In this case, when the heart comes up against e pericardium. the fight is finished and the animal ccumbs. We find the same story in the terminal anges of heart disease, where the process of comnsation which I have described above becomes sufficient. Here again enforced rest may give time d opportunity for re-establishment of a sufficient rculation, but with advance of the fundamental orbid condition even complete rest becomes powerless relieve the heart ; the output falls off, the circulaon is insufficient for the needs of the tissues, and we t all the secondary results of failure of compensation -suppression of urinary secretion, water-logging of e body and malnutrition of all its organs, which her in the fatal termination.

During the last few years great advances have been ade in our knowledge of the causation of many of ese morbid conditions, and this increased knowledge has, as always, enhanced our powers of dealing with such cases, of staying the course of the disease or delaying its fatal issue. It is interesting to note that these advances are the direct outcome of researches made with the sole object of elucidating the intimate nature of muscular contraction. In his book Harvey remarks, “ Of these things we shall speak more opportunely when we come to speculate upon the final cause of this motion of the heart.” Such speculation at that time would have been in vain. It seems probable that he anticipated finding the solution in the study of the generation of animals, but we know now that to penetrate more deeply into the final cause of the action either of skeletal muscles or of the heart requires a physical and chemical knowledge which even now we are only beginning to attain. I would remind you that the string galvanometer, the employment of which has thrown so much light on the essential nature of disturbances in the heart rhythm, was invented by Einthoven with a view to study the electrical changes accompanying activity in any kind of tissue.

THE INHERENT RHYTHMIC POWER OF THE HEART.

In dealing with the origin of the rhythmic power of the heart, Harvey rightly ascribes it to the heart muscle itself, and brushes aside any suggestion that it is dependent on the nervous system, or the liver, or any other organ. His assurance on this point was due to his observation of the developing chick, in which the first sign of life was the pulsating spot of blood in the region where the heart was being formed. It is interesting to note that it is the same method —namely, the investigation of development—which has settled the question of the seat of the rhythmic power of the heart, and has revealed to us the origin and course of the rhythmically recurring wave of contraction in the heart of man. By means of a technique, first devised by Harrison in the United States, it is possible to cultivate living tissues outside the body in much the same way as we have learned to grow micro-organisms. Using great care to exclude infection we are able to transfer to plasma or salt solution on a glass slide fragments of tissue which, being kept warm, live and multiply. From such a preparation further generations can be brought up, and in one such case a preparation of the muscle cells of the heart of a chick has been kept alive, growing and dividing, for 12 years—a time far beyond the natural span of the life of the fowl. Such a result proves that mortality is but an accident of the complexity of our living machine, and not a necessary quality and fate of the tissues of which the body is composed. But during these 12 years the muscle cells have not ceased to contract rhythmically, showing that in their peculiar properties must be sought the origin of the rhythmic beat of the heart, thus finally disposing of the various views which have been held, according to which the origin of the heart beat was to be sought in the nervous ganglion cells and fibres present in different parts of this organ.

And it is by the embryological method—i.e., by observing the processes of generation—that Keith and Flack were able to lay the anatomic foundations of our present knowledge of the origin and course of the contractile processes in the heart of the higher animals. In the developing heart, as in the lower vertebrates, the beat originates in that part of the contractile tube which later will form the sinus venosus. In the course of the changes undergone during development, Keith showed that this sinus tissue persisted at definite parts of the mature heart, and could be distinguished under the microscope from the surrounding parts of the heart. This special sinus tissue was given the name of the sino-auricular node and the auriculo-ventricular node.

The brilliant experiments by our distinguished Fellow, Sir Thomas Lewis, have resulted in a complete knowledge of the part played by these nodes in the cycle of the heart's contraction. He has shown how the sino-auricular node is the pace-maker of the heart, how the contractile process originating here spreads through the auricular muscle to the auriculo-ventricular node, and then passes rapidly through the bundle of specialised muscular tissue known as the *a-v* bundle to all parts of both ventricles. We have in this bundle an interesting example of a muscular tissue differentiated to serve the propagation of excitation rather than for contraction, so that it closely resembles nerve in the manner of its function. To the same fine and careful experimenter we owe the explanation of one of the commonest conditions in the diseased heart—namely, auricular fibrillation or delirium, which is responsible for the irregular ventricular contractions, often leading rapidly to exhaustion and failure of the heart. It is remarkable that the clue to the explanation of this condition was first given by the observations of Romanes on the contractile tissue of jelly-fish, which by its rhythmic pulsation propels these graceful animals through the sea-water. It was shown by Mayer for the jelly-fish and by Mines for the frog's heart that it was possible to obtain a ring of contractile tissue in which a wave of contraction passed continuously round the ring, and the merit of Lewis's observations is the proof that delirium is of the same nature as this circus movement, so that the contractile wave continually progresses over the muscular tissue, exciting each part in turn but in a completely incoördinate fashion. It was long ago shown by Marey that the rhythmicity of the heart was bound up with the prolonged refractory period affecting the heart muscle after its contraction, during which period it was insusceptible to any form of excitation. Lewis has shown that the circus movements which are responsible for fibrillation are due to a disturbance in the normal relation between the rate of conduction of the excitatory process and the refractory period in the heart muscle. Thus instead of an orderly procession of impulses from one node to the next and so to the *a-v* bundle and ventricles, every individual fibre is contracting rhythmically but independently of what is happening in its surroundings.

Time will not allow me to deal with the manner in which the heart, already so perfect as it would seem in its power of adaptation, is controlled by the central nervous system, so that the adaptation to changes in the environment and to the needs of the most distant parts of the body can be carried out with greater perfection and with the least possible drain on the energies of the heart muscle. Among such adaptations must be included those attendant on the emotions —" every affection of the mind that is attended by either pain or pleasure is the cause of an agitation whose influence extends to the heart." But, indeed, Harvey's treatise, being the foundation of modern physiology, might serve as a text to a commentary from which but little of our present-day knowledge of the organs of the body could properly be omitted.

I should like, however, to be permitted to allude to another chapter in modern physiology which can be said to have grown out of Harvey's discovery of the circulation of the blood, and which is becoming every day of increasing importance.

The Chemical Integration of the Body.

In the dedication to his work Harvey compares the heart to the sovereign king, and throughout he continually recurs to what we should now describe as the " integrative function " of this organ. In virtue of the circulation which it maintains, all parts of the body are bathed in a common medium from which each cell can pick up whatever it requires for its needs, while giving off in return the products of its activity. In this way each cell works for all others—the lungs supply every part with oxygen and turn out the carbon dioxide which they produce, the alimentary canal digests and absorbs for all, while the kidneys are the common means of excretion of the soluble waste products of the body. Changes in any one organ may therefore affect the nutrition and function of all other organs, which are thus all members one of another. But, in addition to enabling this community of goods, the circulation affords opportunity for a more private intercourse between two or at any rate a limited number of distant organs.

It is now 18 years since I drew the attention of this College to the chemical messengers or hormones which are employed by the body for this purpose. As an illustration of the method by which they work, I adduced the example of carbonic acid, which is the product of all cellular activity, and at the same time has a specific excitatory effect on the respiratory centre, so that the respiratory movements keep pace with the needs of the whole body for oxygen. The typical hormone, however, is a drug-like body of definite chemical composition, which in a few cases is actually known, so that the substance has been synthesised outside the body. It is more or less diffusible, and may even withstand without alteration the temperature of boiling water. It is generally easily oxidisable in a neutral or alkaline medium, so that after its production it does not remain long in the blood ; it delivers its message and is then destroyed. Each specific hormone is manufactured by a group of cells and turned into the blood, in which it travels to all parts of the body, but excites definite reactions in one or a limited number of distant organs. The production and action of these substances are continually going on in the normal animal. They are necessary to health, and their production in excess or in deficit gives rise to disease and maybe to death. Typical of these substances is secretin, a substance produced in the epithelial cells lining the upper part of the small intestine when these come in contact with weak acid, so that it is produced in normal circumstances by the passage of the acid chyme from the stomach into the duodenum. Directly it is produced it is absorbed into the blood and travels round to the pancreas, to the liver, and to the intestinal glands, in all of which it excites secretion. By means of this chemical reflex the arrival of the products of gastric digestion in the small intestine evokes within a couple of minutes the secretion of the three juices whose coöperation is necessary for completing the work of digestion and solution of the food already begun in the stomach. It is probable that this mechanism is but one of a whole chain of chemical reflexes responsible for the orderly progression of the various stages in the digestion of food.

These hormones may apparently be formed by any kind of tissue. In many cases a gland which has, in the evolutionary history of the race, poured its secretion by a duct into the alimentary canal or on to the exterior, loses its duct and becomes a ductless gland, the secretion being now transferred either immediately or through the lymphatics into the blood-stream. In either case these chemical messengers may be formed from masses of cells which have at no time had a glandular structure, and may be modified nervous tissue, germinal tissue, or some part of the mesoblast. As a type of the ductless gland derived from one with an external secretion the most familiar example is the thyroid. The physiological action of its internal secretion and the morbid results of its excess or deficiency, affecting tissue growth and development, metabolism and mentality, are familiar to all. In recent years the active substance has been actually isolated and its constitution determined by Kendal, who has shown that it is an iodine derivative of an amino-acid, tryptophane. It seems almost a fairy tale that such widespread results, affecting every aspect of a man's life, should be conditioned by the presence or absence in the body of infinitesimal quantities of a substance which by its formula does not seem to stand out from the thousands of other substances with which organic chemistry has made us familiar.

But although we do not yet know their constitution, the chemical messengers associated with the reproductive organs are possibly even more marvellous in the influence they exert on the different parts and functions of the body. The effects of castration have been the subject of observation almost from the beginnings of civilisation, but it is only during the last few years that definite proof has been brought forward showing that these effects are due to the removal of chemical messengers normally produced in the testes. The whole differentiation of sex and the formation of secondary sexual characters are determined by the circulation of the blood of chemical substances produced either in the germ-cells themselves or, as seems more probable, in the interstitial cells of the testes and ovary, which themselves are probably derived from the germ-cells of the embryo. Thus it is possible by operating at an early age to transfer male into female and vice versa. Removal of the ovaries from a hen causes the assumption of male plumage; the removal from a young cock of the testes and their replacement by an implantation of ovaries causes a disappearance of the comb and the assumption of the plumage of a hen. Each animal, as concerns its general build and colour, has a neutral form, which, as has been shown by Pézard, results from the extirpation of either testes or ovaries. In fowls the neutral form, as judged by the plumage, approximates the male, whereas in sheep the neutral form resembles the female. There is no question that, by the mplantation of ovaries or testes into the fœtus at a sufficiently early age, one could produce the whole development of the internal and external genitalia corresponding to the sex of the gland implanted. It is worthy of note that these sex characters affect also the mentality and the reactions of the animal, although they are quite independent of any nervous connexions. Here, as in the case of the thyroid, the functions of the central nervous system, in their highest manifestations, depend on the circulation in the blood of chemical substances or hormones. The wonderful development hat takes place in the female after conception to fit her to nourish the fœtus as well as the young child is also due to hormones, produced in some cases perhaps n the ovaries, in other cases in the product of conception itself.

We owe to Schafer the knowledge of the internal secretion of the medulla of the suprarenal bodies. As Cannon has pointed out, this secretion is poured nto the blood during conditions of stress, anger, or ear, and acts as a potent reinforcement to the energies of the body. It increases the tone of the bloodvessels, as well as the power of the heart's contraction, while it mobilises the sugar bound up in the liver, so hat the muscles may be supplied with the most readily available source of energy in the struggle to which these emotional states are the essential precursors or concomitants.

Wonderful, too, is the influence exerted by the ecretions of the pituitary body. This tiny organ, which was formerly imagined to furnish the mucus to he nasal cavities, consists of two lobes which have different internal secretions. That produced by the nterior lobe seems to influence growth, excess producing giantism or acromegaly, while deficiency leads to a retarded growth and infantilism. The posterior lobe, which in aspect would seem but a small ollection of neuroglia, nevertheless forms one or more ubstances which, circulating in the blood, have the most diverse influences on various parts of the body. They cause contraction of the uterus and of the bloodessels (these are possibly two distinct substances), they may increase or diminish the flow of urine, they ffect the excretion of chlorides by the kidney, and, ccording to Krogh, their constant presence in the lood is essential for maintaining the normal tone of he capillaries. In the frog the post-pituitary hormone responsible for the protective adaptation of the olour of the skin to the environment—an adaptaon which is effected by retraction or expansion of the igment-cells or chromatophores of the skin; and, we may accept Kammerer's conclusions, the ituitary hormone which is poured into the blood for his purpose affects the germ-cells themselves, so that dividuals born of parents that have lived in light or ark surroundings are correspondingly light or dark— real transmission of acquired peculiarities effected, ot by the gemmules of Darwin, but by the influence f a soluble diffusible hormone on the germ-plasm.

THE THERAPEUTICS OF HORMONES.

In the multiplicity and diversity of the physiological effects produced by these various chemical messengers one is apt to lose sight of the fact that we are here investigating one of the fundamental means for the integration of the functions of the body. These are not merely interesting facts which form a pretty story, but they are pregnant of possibilities for our control of the processes of the body and therewith for our mastery of disease. Already medical science can boast of notable achievements in this direction. The conversion of a stunted, pot-bellied, slavering cretin into a pretty, attractive child by the administration of thyroid, and the restoration of normal health and personality to a sufferer from Graves's disease by the removal of the excess of thyroid gland, must always impress us as miraculous. In the same way we may cure or control for the time being diabetes insipidus by the injection of the watery extract of the posterior lobe of the pituitary body. The latest achievement in this direction is the preparation, by Banting and Best of Canada, of the active principle normally formed in the islets of the pancreas, and the proof that the diabetic condition in its severest forms can be relieved by its subcutaneous administration.

In my Croonian lectures I suggested that, if a mutual control of the different functions of the body be largely determined by the production of definite chemical substances in the body, the discovery of the nature of these substances would enable us to interpose at any desired phase in these functions, and so to acquire an absolute control over the workings of the human body. I think I may claim that in the 18 years that have since elapsed we have made considerable progress towards the realisation of this power of control which is the goal of medical science. But there still remains much to be done and many difficulties to be unravelled, and it may be worth our while to consider along what lines researches to this end must be directed. There are, no doubt, many hormonic relationships of which at present we are unaware, since every year research adds to their number. But assuming we know that such and such an organ produces an internal secretion which is necessary for the normal carrying on of a given function or functions, we may desire to diminish or enhance its effects in a patient, or to replace it when it seems to be entirely lacking.

There seem to be three possible methods by which we medical men can interpose our art in the hormonic workings of the body:—

(1) In the first place we may find what is the effective stimulus to the production of the hormone, and by supplying this, increase its production by the responsible cells. For instance, we know that by the administration of acid, or at any rate by increasing the passage of weak acid from the stomach to the duodenum, we can enhance the production of secretin, and so of pancreatic juice and the other juices. Probably therefore, when we give dilute acids to assist gastric digestion, we are setting into motion the whole chain of reflex processes in the alimentary canal, and the chief value of our administration may be its effect on the pancreas. But in a large number of cases we do not yet know what is the effective stimulus to the production of these internal secretions. In the adrenals we know the secretion can be augmented through the central nervous system and the splanchnic nerve under the influence of emotions or of lack of oxygen, but we have no knowledge of the factors determining the production of the pituitary hormones or of insulin by the islets of Langerhans, and this condition of ignorance extends to most of the other ductless glands.

In some cases deficient production of a hormone may be due to the absence in the food and drink of some necessary constituent. Thus iodine is essential to the formation of the specific secretion of the thyroid gland (iodothyrin). If iodine be entirely absent from the drinking water and the soil, so that it is not contained even in minute quantities in the vegetable food grown in the district, the thyroid undergoes hyperplasia—in a vain endeavour to make bricks without straw, to produce its proper hormone without iodine. This seems to be the cause of the great prevalence of simple goitre in certain districts, especially in Switzerland and in parts of the United States. It has been shown, by Marine and others, that goitre can be practically eliminated from these districts by the occasional administration of small doses of iodine or iodides. These results were communicated in 1917 to Dr. Klinger, of Zurich, and as a result of his experience the Swiss Goitre Commission has recommended the adoption of this method of goitre prevention as a public health measure throughout the entire State. Already great progress has been made in the abolition of this disease from the country. Thus the incidence of goitre among all the school-children of the canton of St. Gallen has been reduced from 87·6 per cent. in January, 1919, to 13·1 per cent. in January, 1922.

(2) Where a disordered condition is due to diminished production of some specific hormone, we may extract the hormone from the corresponding gland or tissue in animals. It is characteristic of these hormones that, so far as we know, they are identical throughout all the classes of vertebrates, and it is possible that they may be found far back in the invertebrate world. This method is easy when, as in the case of the thyroid, the active principle is stored up in the gland and is unaltered by the processes of digestion, so that we can obtain all the curative effects of the hormone if we administer dried thyroid by the mouth. We have no evidence that any other of the hormones with which we are acquainted partake of this resistance to digestion, so that to produce their specific effects they have to be introduced by subcutaneous injection—a great drawback when the administration has to provide for the constant presence of a small concentration of the hormone in the blood and tissues. In the case of insulin, for instance, it seems necessary to repeat the injection every 12 hours to obtain any continuity of action, and the same thing probably applies to the pituitary extract, while in the case of the genital hormones no reliable effect has been obtained except by the actual implantation of the organ from an animal of the same family.[1] We may, however, look forward to the day when the chemical constitution of all these hormones will be known, and when it may be possible to synthesise them in any desired quantity. We may then be able to overcome the inconvenience of subcutaneous injection by giving relatively colossal doses by the mouth, or we may be able to modify their constitution to a slight extent so as to render them immune to the action of the digestive juices without affecting their specific action on the functions of the body.

(3) The ideal, but not, I venture to assert, the unattainable, method will be to control, by promotion or suppression, the growth of the cells themselves, whose function it is to form these specific hormones. Though this method seems at present far from realisation, the first steps in this direction have already been taken. It must be remembered that the power of controlling growth of cells involves the solution of the problem of cancer. Experiments on the growth of normal cells outside the body have shown that they can be stimulated to vie with cancer-cells in the rate of their growth, or can be inhibited altogether according to the nature of the chemical substances with which they are supplied. And we know that the growth of certain cells, such as those of the mammary gland or of the uterus, is excited by specific chemical substances produced in the ovary or fœtus, and we may be able to find specific substances or conditions for any tissue of the body, which may excite growth when this is retarded or diminish growth when this is in excess. It may be that in some cases purely mechanical interference will suffice. Thus, in experiments by Steinach and others, it has been found that ligature of the vas deferens close to the testis, while causing atrophy of the seminiferous cells, brings about overgrowth of the interstitial cells which, as we have seen, are chiefly responsible for the hormones determining the secondary sexual characters. Among these secondary sexual characters must be classed the whole of a man's energies. Virility does not mean simply the power of propagation, but connotes the whole part played by a man in his work within the community. As a result of this hypertrophy, these authors claim to have produced an actual rejuvenation in man, and thus to have warded off for a time senility with its mental and corporeal manifestations. Further experiments and a longer period of observation are necessary before we can accept these results without reserve, but it must be owned that they are perfectly reasonable, and follow as a logical sequence of many years' observations and experiments in this field.

It would, indeed, be an advantage if we could postpone the slowly increasing incapacity which affects us all after a certain age has been passed. Pleasant as it would be to ourselves, it would be still more valuable to an old community such as ours, where the arrival of men in places of rule and responsibility coincides, as a rule, with the epoch at which their powers are beginning to diminish. The ideal condition would be one in which the senile changes affected all parts of the body suddenly and simultaneously, so that the individual died apparently in the height of his powers. For it must not be thought that in any such way we could prolong life indefinitely. Pearl has pointed out that if all the ordinary causes of premature death were eliminated, this would increase the average duration of life by not more than 13 years. On the other hand, he shows that the children of long-lived parents have an expectation of life which is 20 years greater than that of the average individual. If longevity is our goal it is not medical science we must look to, but eugenics, and I doubt whether the question is one with which we are concerned. The sorrow of the world is not the eternal sleep that comes to everyone at the end of his allotted span of years, when man rests from his labours. It is the pain, mental and physical, associated with sickness and disability, or the cutting off of a man by disease in the prime of life, when he should have had many years of work before him. To us falls the task of alleviating and preventing this sorrow. In our childhood most of us learnt that suffering and death came into the world through sin Now, when, as physicians, we stand on the other side of good and evil, we know that the sin for which man is continuously paying the penalty is not necessarily failure to comply with some one or other of the rough tribal adjustments to the environment which we call morality, but is always and in every case ignorance or disregard of the immutable working of the forces of Nature, which is being continually revealed to us by scientific investigation. In spite of the marvellous increase in knowledge, to some aspects of which I have drawn your attention, suffering is still widespread amongst us. Only by following out the injunction of our great predecessor, to search out and study the secrets of Nature by way of experiment, can we hope to attain to a comprehension o "the wisdom of the body and the understanding o the heart," and thereby to the mastery of diseas and pain, which will enable us to relieve the burden of mankind.

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[1] In my Croonian lectures in 1905 I reported some experiments made in conjunction with Dr. Lane Claypon, in which I had produced hypertrophy of the mammary glands in virgin rabbits, and in some cases actual secretion of milk by the daily subcutaneous injection of the filtered watery extract of young rabbit fœtuses. Similar results were obtained by Foa. But a weak point in these experiments was that the ovaries had not been previously extirpated. Ancel and Bouin have shown that in the rabbit the mere rupture and discharge of a Graafian follicle, with the subsequent growth of a corpus luteum, are sufficient to cause hypertrophy of the mammary glands (the effective hormone presumably having its seat of manufacture in the luteal cells). It seems possible, therefore, that the effect of our injections may have been on the ovaries, and that the growth of the mammary glands was only a secondary and indirect result. I do not therefore now regard our experiments as conclusive.

THE EARLY TREATMENT OF MENTAL DISORDER.

A CRITICAL SURVEY OF OUT-PATIENT CLINICS.*

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As students of psychiatry we must remember that the human being is merely a biological unit always to be studied and considered by the quality of its reaction to the environmental impositions made upon it by the social body to which it belongs. The late Dr. Charles Mercier, in his "Text-book of Insanity," very ably and clearly explains the relative position of the psychiatrist to his patient. He states:

> "That the student of medicine proper, when commencing his duties as a psychologist, crosses the scientific frontier into a new province, like the shipwright or engineer of a vessel who quits the engine-room to take duty on the quarter-deck. With his acquired knowledge of the structure and working of the craft his function now is to know how the vessel comports herself in wind and weather, and to study charts and tides."

This dictum expressed so aptly in the above simile can be safely taken as the working principle of all psychiatrists, and upon it one can build the whole edifice dealing with the study and practice of early treatment.

Mental disorder in its earliest stage, as most psychologists understand it, is a condition of mind which may more often than not permit an individual to adjust himself to his surroundings and to follow his avocation without ever reaching the stage when the medico-legal label of "insanity" has to be applied to the case. It is very probable that most of us at some time or another suffer in no small degree from an impairment or disturbance of our simple attributes of mind which concern the lower psychological levels, and may thus be victims of mental disorder. In these early phases one is still able to carry out fairly well the essential law of adaptation, and so harmonise with our ever-trying and kaleidoscopic conditions of life. It is well known that the exacting nature of civilised life tends to make itself felt chiefly upon those who are unfortunate enough to be endowed with a weak or unstable mental make-up, and it is to these individuals we have to pay our attention in the form of early treatment. For some generations past we have been teaching the gospel of prophylaxis, and it behoves those who are entrusted with the health of the nation to use every means available to prevent ill-health, whether it be mental or physical. Thus prophylactic medicine, guided by anxious care for health, must forcibly ascertain with greater exactitude the causal connexions within its own field.

Beginnings of Early Treatment.

Much careful thought and valuable work have been exercised in the study and treatment of recognised and well-established mental disease, but it is only of recent years that the early treatment of mental disorder has seriously engaged the attention of psychiatrists. Unfortunately, up to the present moment, those responsible for the framing of the law have made a class distinction as regards the methods of procedure in handling cases of mental disease. For many years past, under the ægis of the Board of Control, opportunities have been offered to private patients desirous of obtaining early indoor treatment in the form of the voluntary boarder system, a scheme which has been in vogue at Bethlem Royal Hospital and elsewhere until the present day, but in the case of the rate-aided or pauper patient no early indoor or voluntary boarder system has existed, and only when the individual had drifted into the zone of certifiable insanity could any actual indoor treatment be offered.

Before the war, at several of the big general hospitals, out-patient clinics were instituted where mental specialists could be consulted, and where work has since been carried out with some measure of success, but in the majority of cases, particularly in those of a psychotic nature, no intensive or prolonged treatment was attempted or thought possible. Indeed, without specially organised departments on the lines pursued in mental hospitals, most general hospitals are not even now in a position to undertake the care and treatment of mental cases. The good which has been accomplished so far by out-patient departments of general hospitals undertaking the treatment of mental cases is beyond dispute, but much remains to be done. Latterly, several specialised clinics have sprung up to deal with this important and difficult problem of early treatment, directing their energies to patients whether of the private or pauper class. In 1919 at Bethlem Royal Hospital an out-patient department was inaugurated, where considerable experience and knowledge has subsequently been obtained by those in charge. Similarly, the Maudsley Hospital, the opening of which has been delayed by war-time exigencies, threw open its doors in 1922 to carry out both the outdoor and indoor treatment of civilians. Furthermore, the Tavistock Clinic, another post-war institution, has been successfully organised and continues to do good work in this direction.

Hospital Accommodation for Early Mental Cases.

The first of the general hospitals to wed psychiatry to medicine proper has been the Middlesex, where three wards have recently been set apart for the reception of early mental cases, the treatment of which will come under the direction of the St. Luke's Mental Hospital staff. In addition, at Brighton the Lady Chichester Hospital has for some years continued to rank as a successful pioneer. It will thus be seen that out-patient clinics for the treatment of mental disease are of comparatively recent growth, but they are already in operation in the United States of America and in Australia. The results to date promise far-reaching effects upon the future treatment of incipient mental disease. The war has strewn the community with nervous and mental wrecks, many of whom are potentially insane, but by no means beyond improvement or ultimate cure, provided a wisely adjusted coöperation between doctor and patient can be secured, with a trained social worker as a connecting link.

"Shell-shock" and Out-patient Clinics.

The problem of the so-called "shell-shock" patient has forced the whole question of the early treatment of neurosis and psychosis to a position of pre-eminence and recurring persistence. If the shock and violence of war experiences resulted in complete inability to face reality, and if by care, understanding, and skilled treatment mental and moral balance could be restored, there is no reason why civilians, harassed and bewildered by their social environment, should not experience a like benefit from similar care and treatment. Neuroses, psycho-neuroses, and psychoses all have a common basic origin in both soldiers and civilians, whether due to shock, nervous instability, continued stress, lack of adaptation, or psychic trauma. In the case of civilian patients, without the glamour of military service in extenuation of their condition, the psychiatric social worker should be of the greatest value in unravelling the contributory causes of mental disorder. In the case of the soldier, the shock or stress may have been only a matter of minutes or hours at the most, whereas in the case of the civilian, the exciting cause of the incompatible social surroundings perhaps have been the burden of years; but the functional damage may be identical in each case. In both kinds of patients one must expect to find a diversity of types, and the most hopeful results are to be looked for in cases where mental and physical collapse was only partial and where the antecedent history was nil. In those cases, especially if the patient was alive to his actual condition and had some insight into the relation of cause and effect, he was successfully encouraged in self-help and to readjust his attitude to the inevitable stress and strain of modern life.

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* Abridged from a paper read before the Medico-Psychological Association, which will appear in full in the Journal of Mental Science, October, 1923.

For such cases the establishment of the out-patient clinic was the solution of the problem, and if progress has been slow it must be put down to lack of funds. Taxation, trade depression, and the gospel of national economy may retard progress for some time to come, but the seed has been sown, and part of the charitable funds allocated to general hospitals should be diverted for the upkeep of mental out-patient clinics. This action might help to obviate the cleavage and prevent the distinction between the mental and the physical sides of medicine—a state of things far too prevalent to-day.

It might be here pointed out that the difference between the cost of treatment of in-patients and of out-patients is not sufficiently realised by the general public, and, in appeals for funds or statements relating to hospital finance, this difference should be brought to notice. The cost of one patient in a county mental hospital is nearly 30*s.* per week, whereas the cost per patient in a well-equipped up-to-date out-patient clinic would probably not exceed one-tenth of that sum. Even if the cost of maintaining an efficient social service in connexion with the clinics be taken into account, the cost of out-patients' departments is relatively small, when their value as a means of reducing the cost of prolonged care in hospital is shown. By means of the clinics many patients, who would be chargeable upon the State, are kept at home, either self-supporting or cared for by their relatives.

Community Value of Early Treatment.

Early treatment of mental cases is of vital importance to the State if considered from the point of view of community hygiene, and the well-being of the race. It requires little imagination to picture the domestic misery which accompanies mental derangement. The time which elapses between first symptoms and the necessity for certification and removal, or until the patient becomes a direct menace to the family, is filled with anxiety and care for all parties concerned. The patient, himself, fully or dimly conscious of his condition, leads a life of misery, which in itself increases his liability to a final and complete mental dissolution. The immediate members of his family are daily subjected to caprice and outbursts possibly, and the reaction on themselves must, in time, have deplorable results on their nervous systems. The only too prevalent and popular idea of the added stigma of an insane relative holds them back from seeking early professional advice and friendly assistance, and by the time the patient is removed from his environment he leaves behind him one or more members of his family in a state of mental and physical exhaustion, thus adding to the sum-total of avoidable human suffering and economic inefficiency.

Another important plea in favour of the extension of the out-patient clinic system is that it affords opportunities for research which may prove to be of the greatest value in the future social organisation of mankind. The staff of a clinic should be made up of physicians, specialists, nurses, and social workers, all trained upon lines having the same objects in view. Facilities also for routine physical and laboratory examinations, mental tests, X ray, and electrical examinations and therapeutic equipment should be available, from which data can be drawn and a conclusive diagnosis made.

Routine at the Bethlem Royal Hospital Clinic.

In order to elucidate and emphasise any criticism which one may make as the result of practical experience gained in this department, I would like to review briefly the procedure as adopted at Bethlem Royal Hospital for the handling of the out-patients who require early treatment. The clinic is open on Tuesdays, Thursdays, and Fridays. On Tuesday and Friday a psychiatrist and neurologist are in attendance and deal with all cases of neurological and psychiatrical interest, taking full advantage of conference when an exchange of opinion is needed. This system of collaboration between the sister sciences of neurology and psychiatry—a long-cherished idea of mine—fortunately came into being at the inception of our out-patient clinic in Lambeth-road and has proved to be of inestimable value and benefit, both to the physicians and to the patients. In the case of a patient whose condition necessitates further investigation of a specialised character, he is referred to one or more of the specialists indicated by the nature of his symptoms.

Now with regard to those cases requiring some form of psychotherapy. It has been found that under present economic conditions, treatment of this kind is far too costly to be indulged in, other than upon a small scale, owing to its exacting demands made upon the energy and time of the members of the already too small staff. We live in hope that sooner or later larger sums of money will be expended in increasing the working capacity of these prophylactic clinics in the way of added personnel and equipment. Those who do require psychotherapy are carefully selected and attend on an afternoon specially set apart for the treatment of such cases. Patients needing massage or electrical treatment attend the hospital three times weekly, when they are dealt with either by a male or female nurse, as the case demands, who has been specially trained in this branch of treatment. Should any cases suggestive of mental deficiency be encountered which call for further consultation and opinion, the patients are referred to a physician on the staff who attends regularly once weekly and deals specially with them. Pathological and X ray examinations are carried out regularly by the pathologist and radiologist respectively, special attention being paid to the clinical investigation of the blood, urine, and excreta, and for those cases requiring it, intracranial, dental, and visceral radiograms are made. In addition, clinical assistants afford considerable help in compiling notes and supplying other data.

New cases are restricted usually to six at each session, and the procedure in dealing with them is, generally speaking, similar to that which is followed at the out-patient departments of all general hospitals. However, a special warning note may be made here. Under no circumstances is the patient or relative allowed to handle the case-sheet, as is the usual custom in other out-patient departments. This rule is rigidly enforced owing to the fact that I have known impressionable patients and relatives foolishly discussing the medical notes and opinions regarding the case, resulting in injurious effect upon the patient's mental condition. The average number of patients attending each clinic is about 35; the total number of new cases attending during the year was 323; the total number of attendances was 3864. As to average attendances, that for the civilian patient was 4 and that for the Ministry of Pensions case was 12 Each patient is interviewed by the lady almoner, who in this department, acts, in addition, as a social worker—an officer who, as we shall see later, is of the greatest importance. Although it is usually convenient and economical to combine the offices of almoner and psychiatric social worker, it may not always be possible to do so, especially in clinics attached to general hospitals where the almoner's work is already exceedingly heavy. Small charges varying from 6*d.* to 5*s.* for each attendance, are made according to the status of the individual, which is determined by the almoner, and in this way excluding overhead expenses, the clinic, being practically self-supporting, has proved itself, in our case, to be a success from the financial aspect.

Special Difficulties of a Psychiatric Clinic.

The psychiatric out-patient clinic differs in many respects from the out-patient department of a general hospital, more particularly with regard to the data required by the physician for the diagnosis and treatment of his cases. An intimate confidence must be set up between doctor and patient and the personal relationship must be so close that no clinical facts, however trivial they appear to the patient himself, should be overlooked. It is only in this way that the patient will feel that he is really understood and that his case is not hopeless. The physician requires to know the details of his home surroundings, what actions and reactions in the daily round there may be causing strain to himself or his friends. Information of this kind is not easy to elicit from uneducated people, who, in addition to self-consciousness in the presence of those with whom they are not in the habit of associating, have not the mental equipment for a correct and unbiassed relation of facts. They are unable to discriminate between essentials and trifles; they often describe at great length, and not very clearly, what they think they ought to have seen in the patient, but did not. Irrelevancies of this kind waste time and obscure the issue and physicians should not be subjected to this kind of distraction, more especially if the social worker is at hand to prepare the preliminary notes of the case.

The Psychiatric Social Worker.

It is encouraging to know that an experienced worker has also been appointed as almoner and inquiry officer at the Maudsley Hospital, and I understand that a voluntary worker has been trained and attends one or two days a week at the Tavistock Clinic also. It may be here stated that the distinction of being the first out-patient clinic in England to appoint a psychiatric social worker rests with this hospital. It is this officer, who, subsequently, if the case requires it, visits the home of the patient and makes judicious and tactful inquiries regarding the worldly setting of the individual. It is to this officer the physician in charge looks for much valuable information regarding life-history and habits in the case of the patient concerned. It is also to her the physician refers for the details of any social factor which may be present in the environment of the patient which is proving to be a fruitful source of mental irritation to the individual, militating against his well-being. In support of this I may mention that I have oft-times been deeply impressed by the fact that a patient upon whom one would look as a simple case with a favourable prognosis has persistently continued to show signs of mental disorder, and it has fallen to the lot of the social worker to elicit the irritating factor in the social setting of the individual which has proved to be the cause of the breakdown. The importance and value of the assistance she can render the physician can be appreciated only by those who have experienced it.

As a matter of general interest, some may like to hear how the work is organised and carried out by this officer. All new cases coming to the physician are investigated by the worker before their second visit. He then has before him as full a report as possible of the family and personal history of the patient, and a brief account of the salient features in the home environment. After a further examination if any special treatment or change in the surroundings of the patient is recommended, the worker endeavours to make the necessary arrangements. A careful record is kept of attendance, whereby it can be seen at a glance if any patient has failed to attend the clinic for over a month, and a follow-up visit is paid to ascertain the reason. Cases of a purely neurological nature are not investigated in this way, unless for some special purpose and at the request of the neurologist. So much for the individual who requires early treatment of the out-patient order.

The Mental Treatment Bill.

On the other hand, the inmates of a mental hospital, whether voluntary boarders or under certification, present problems several degrees more serious than the really early case. As a general rule, no man or woman enters for in-patient treatment until every means has been tried to control and check the disease, which, if approaching the chronic stage, leaves little for scientific research to accomplish and small hope of amelioration by therapeutic experimentation. The new Mental Treatment Bill is a stride forward in State medicine and should lead to concentration of effort and coördination of methods for dealing with early mental disorder. This Bill gives power to the local authorities, through their mental hospital visiting committees, to provide out-patient clinics for persons suffering from mental disorders (Sec. 1 (2)), allows them to admit voluntary boarders to any of their institutions (Sec. 1 (3)), and gives them power to make provision for the after-care of patients discharged (Sec. 1 (4)).

In another section of the Bill power is given to the local authorities to make grants for research work. But here the public have the course of events in their own hands, for however willing and anxious the local authorities may be to carry out the provisions of the Bill, they will be powerless to accomplish much without the driving force of an enlightened public opinion. The public must be made to realise that the purpose of a clinic is to offer people all the advantages of a mental hospital without the necessity of entering as an in-patient. Moreover, they must be made to understand that the earlier treatment is begun the greater the chance of a permanent cure. Relatives, as well as the patient, would be saved much misery and ill-health by making use of the clinics at the first sign of nervous or mental instability. To ensure this there should be greater collaboration and more ready conference between the general practitioner, who may see the case in its initial stages, and the psychiatrist, who presides at the clinic.

The Mental Treatment Bill is of vital importance to the community and is a reform which should have behind it a genuine public interest, so that local authorities may spend the Government grants wisely and well; otherwise, progress will be slow, difficult, and costly. It should not be difficult for medical and social workers to reach the unstable elements in our midst, and to make adjustments by which they can often be prevented from needing the protection of an institution.

Education of the Public.

The secret of modern progress often lies in propaganda. In the United States of America and in Canada much has been done to educate the public and to enlighten them as to the best means of facing the problems of early mental disorders. In this country intensive propaganda is never likely to be carried to the extent which obtains in the States, where it has been brought to a fine art. We have recently had an example in which a persistent minority has forced and carried its views over the heads of an unwilling majority, the result being a remedy worse than the disease. But there is no reason why an organised propaganda in this country should not attempt to arouse the public conscience to its obvious duty in the matter of early mental disorder in the adult and defective mentality in the child. It should be the duty of every psychiatrist to educate the minds, not only of patients and their relatives, but also those of our medical brethren, to accept the fact that mental disorder is a common everyday illness, with which no stigma or sinister atmosphere should be associated.

Other countries, however, do not rely on propaganda alone. Attached to all mental out-patient clinics will be found the highly-trained psychiatric social worker. This again is a sphere of activity strongly developed in the States, where qualified laymen and medical practitioners work side by side, the work of one being complementary to the other. For example, some State medical officers of health are not medical practitioners, but they must be doctors of hygiene or diplomates in public health. These qualifications are granted after a course of study and examinations, the possession of a medical degree not being an essential condition of entry. The social workers receive an equally intensive training. They are trained in colleges adapted for the purpose, and are selected because of their understanding of human psychology and physiology. They are expected to deal with the patient in his social setting as intelligently as the psychiatrist deals with him in the clinic.

Education of the Social Worker.

The selection and training of social workers is of the utmost importance, having regard to the intimate association they must cultivate with the patients if they are to appear to them as guide, philosopher, and friend. A social worker must not only possess a sympathetic nature, but must have that understanding of mental patients born of experience in dealing with them. Her grade in society must have brought her into contact with all sorts and conditions of people, and especially with persons connected with or interested in homes and institutions, and also with others charitably minded. It has to be remembered that she enters homes overshadowed with disaster, and without the entire confidence of the inmates she is not likely to probe beneath the surface of a subconscious and protective reserve. She must first of all win the coöperation of the patient, without which he will never feel himself really understood. The way will then be paved for obtaining a full history of his condition and the causes leading up to his mental state. For the first time, perhaps, he will feel the stimulus of hope, and her presence will be a moral support when he and his family realise that she is part of the scheme of things intended for his treatment and cure. His home surroundings and the social environment in which the family moves must be ascertained by direct questions, and where satisfactory answers are not forthcoming, a well-trained worker will be able by veiled but acute observations to discover any constant or deep-seated factor militating against the patient's well-being. Only thus will it be possible to readjust him to his normal surroundings.

It might be considered advisable to standardise inquiries up to a certain point, leaving the social worker to use her own discretion as to supplementary questions. As an indispensable link between the physician and the social world in which the patient has to live, she will be able by repeated visits to complete the clinical picture, especially the antecedent history. This applies more particularly to civilian patients without a definite cause for the onset of illness. Without attempting anything in the nature of a medical examination, she may in some cases be able to fix the cause of an anxiety neurosis of one sort or another. There may be domestic reasons for a fixed idea which the removal of a patient would end or mend. By repeated visits she would be able to ascertain his mental outlook, and with simple suggestion divest his symptoms of their terror. Apprehension would cease to trouble him and his economic efficiency would be increased; likelihood of relapses would be lessened.

The social worker by expanding her sphere of activity would render specially valuable help in the case of feeble-minded children and the young delinquent. By access to school teachers she would gain particulars as to a child's habits and reasons for backwardness at school. Mental twists and peculiarities of conduct would be noted, and how far re-education and a different environment might be likely to benefit the case upon the advice of the physician who has charge of it. By associating herself with special cases appearing before the police courts, and conferring with the missionary and probation officers, much profitable work could be carried out and useful data collected. One of the items on the programme of the National Council of Mental Hygiéne is the promotion of social service in connexion with out-patient clinics, and it is to be hoped that in time at least one such worker will be attached to every out-patient clinic for nervous disorders.

Conclusion.

In reviewing the vast, complex, and far-reaching problem of early treatment, it must at once be acknowledged that the medical or scientific side, although falling short in a large measure in the past, is now attempting to supply its full quota of help. However, this is not a solution to the difficulties; it merely serves as a half-way measure, and we must now penetrate as explorers still further into the jungle of life, in order to succour or even extricate the weary or fallen wayfarers, who, from a lack of mental and physical equipment, have been unable to journey through the tangled undergrowth of disharmonies. Fundamentally, the problem as detailed above proves itself to be one not only beset with obstacles, but also presenting a promising outlook, and, in order to ensure success, must of necessity resolve itself into a question of mental hygiene backed up by the vigorous support of eugenics and euthenics. It would now appear that we have reached a stage of civilisation when social organisation is increasingly urgent, especially when one faces the fact that social evolution is taking place at an extremely rapid rate.

All those who are interested in the question of early treatment must welcome with open arms the inauguration of the National Council of Mental Hygiene. This body has wisely elected to its executive men and women who from their training and experience are well qualified to undertake the intricate and onerous task of social readjustment in so far as it concerns the mentally unstable. To their activities we shall look with great interest and with the fervent anticipation that a really practical and coördinated scheme will be formulated to improve and facilitate the working principles which at present exist. We thus hope that by their help out-patient clinics will be linked up in closer association with the executives of the general hospitals, mentally defective organisations, and after-care associations.

A NOTE ON

ACUTE *BACILLUS COLI* INFECTION OF THE GASTRO-INTESTINAL TRACT

IN THE NEW-BORN CHILD CONTRACTED FROM ITS MOTHER.

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In the issue of The Lancet dated July 21st, 1923 (p. 118), Drs. R. C. Jewesbury and L. S. Dudgeon reported a most instructive case of this infection with the fullest details. In view of the correspondence that has taken place with regard to Lady Barrett's article on "The Prophylactic Treatment of Puerperal Sepsis"[1] in which she emphasises the need for clearing up all foci of infection in the mother before confinement—I should like to point out to all who have disagreed with her article, first, how this case confirms Lady Barrett's contention, and, secondly, that this is one of a series of articles on "*Modern* Technique in Treatment."

My attention was drawn to the above articles by a conversation I had—while waiting on a confinement—with the matron of a nursing home who keeps herself abreast of the times by taking The Lancet I had expressed the opinion—from recent observation of several cases—that I believed a great deal of the gastro-intestinal disturbances of early infancy was the result of a toxæmia in the mother, acting on the fœtus in utero. Early jaundice, flatulence, vomiting, and difficulty in finding a suitable diet were always more in evidence in children of mothers who were in a toxic state while carrying. Whether the infection is ante-natal, during birth, or post-natal it is often difficult to say, all three seem to be possibilities. The combination of a streptococcal infection with a *Bacillus coli* is another point I have been coming to; for I believe there is often a double infection in the mother in these cases—the streptococcal infection being primary and the *Bacillus coli* infection secondary.

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[1] The Lancet, 1923, i., 1279.

The following cases have a bearing on the discussion.

CASE 1.—Married woman. Admitted to hospital about fourteenth day after confinement with history of rigors. Temperature and swelling of legs (phlebitis) occurring three or four days previously. Uterus douched but nothing abnormal found. Temperature 101° F.; hæmoglobin 70 per cent. Tongue dry; marked insomnia, headache, and anorexia. *Bacillus coli* in urine; unclassified diplococcus (? strepto-diplococcus) found in blood. Treatment with potass. citras. and catalysers; distinct improvement in a few days; natural sleep, headache gone, ravenous appetite, feeling of well-being, *but* an acute gingivitis with pus developed at the gum margins.

CASE 2.—Married. Suffered from liverishness. Later had appendix removed. Still not feeling well. Two attacks of basal pneumonia with pleurisy within a year. Later became pregnant. Child jaundiced on second day after birth. Very flatulent, sick, vomiting of mucus and food; ill for several weeks. Always troubled with an atonic condition of rectum. Later mother showed pyorrhœal condition for which a total extraction was done. This was followed in three days by a recurrence of pneumonia and pleurisy. A vaccine made from the sputum, which contained large numbers of streptococci, pneumococci, and *Micrococcus catarrhalis*, cleared up the condition. No note as to *B. coli* in urine.

CASE 3.—Married woman. Suffered from severe fibrositis and sciatica. Later had her appendix removed. Then on becoming pregnant developed a most intractable urticarial condition. Child most difficult to rear. All kinds of digestive disturbances. This patient has a recurrence of her skin irritation on becoming pregnant again. Marked streptococcal apical infection of the teeth all the time. No note as to *B. coli* infection.

CASE 4.—Married woman. Suffered from very intractable constipation. On becoming pregnant showed a marked *B. coli* infection of the urine. About ten days before confinement had an acute exacerbation of the urinary condition with temperature, constitutional symptoms, marked insomnia, backache, &c. Child became extremely jaundiced with marked flatulence and digestive disturbance on the second day after birth. Streptococcal foci present in the teeth.

CASE 5.—Married woman, aged 50. Sallow complexion, with dark rings below eyes. Typical poisoned facies.

Previous History.—Suffered from what was called a rheumatic rash on knees and elbows (erythema papulatum) seven years before. Some years later suffered from a rash on hands which was called erythema multiformæ and was diagnosed as due to contact with ivy. In autumn of same year (now two years ago) she suffered from herpes of nerves supplying the external genitals. Still later began to notice a blood-stained uterine discharge.

Condition on Examination.—A discharge was seen coming from the cervix with slight congestion of the os uteri, but no erosion. A large tumour could be felt posterior to the uterus.

Operation.—The tumour on removal proved to be a large parovarian cyst; the uterus and tubes appeared normal.

Course of Case.—About the tenth day after operation she developed a rise of temperature with swelling (phlebitis) in left leg. This had been preceded by marked gastro-intestinal disturbance, flatulence, anorexia, and great depression. Urine revealed oxalates, indican, but no *B. coli*. The uterine discharge returned. After about six weeks of rest and douching and not much improvement in leg or uterine condition, a search for a focus of infection was made. Although the three teeth she had remaining had been examined previously and passed as healthy, on re-examination small pockets were found in the gingival margin. Extraction of the teeth revealed marked streptococcal infection of the periodontal membrane.

Bacteriological Report.—The bacteriological examination of a swab from the cervix showed heavy infection with *B. coli* and streptococci; fæces showed *B. coli* of Friedländer type and excess of streptococci (unclassified).

CASE 6.—Age 45. Had a uterine polypus removed. Suffered from constipation and *B. coli* infection of urine with associated debility and anæmia. Later, after vigorous manual exercise, suddenly developed a painful swelling in breast (lobular mastitis). This settled down with rest and autogenous vaccine for the *B. coli* infection. None of her own teeth. Previous condition of mouth not noted.

CASE 7.—Aged 40. Had suffered from neuritis and rheumatoid arthritis for past three years. Frequent liverish attacks with flatulence. Had her appendix removed. Later *B. coli* infection of urine, then colitis, followed by interstitial mastitis for which the breast was removed. Still later an acute inflammation of fauces and tonsils with recurring epistaxis. No virulent organisms present on report from swab taken. On re-examination of teeth (X ray and bacteriological) showed marginal pyorrhœa and marked streptococcal apical infection.

Summary.

Case 1 shows the connexion between *B. coli* and most likely streptococcal infection, the latter probably arising from the gums.

Case 2 shows the streptococcal infection of the mother with marked toxic effects on the child. Note the rectal atonic condition of the latter—a symptom I believe to be due to the streptococcus poison. Parenthetically it also shows the risk of complete dental extraction in a patient with marked toxæmia. Important are Sir William Willcox's warning on this point—viz., that the presence of a leucopenia is a danger sign—and Sir Almroth Wright's explanation of the possibility of the leucocytes being poisoned to such an extent as to lose their phagocytic power.

Case 3 shows the effects of toxæmia in the mother—arising from a streptococcal infection—where the extra strain of child-bearing upsets the defensive powers of the body. Also, the prolonged digestive disturbances in the child are probably the result of the ante-natal toxæmia.

Case 4 shows the relation of *B. coli* injection in the mother with marked jaundice and prolonged gastro-intestinal symptoms in the child.

Case 5 shows evidence of a toxæmia going on for a period of years, as evidenced by the skin rashes, followed by a herpes zoster, which is said to be due to a streptococcal infection of the posterior root ganglia. The fact that it is the nerves of the external genitals that are involved in the herpetic eruption and that the genital organs later show morbidity is probably more than a coincidence.

That the uterine discharge contains streptococci and *B. coli* shows the possibility of the child becoming infected with mucus in its sojourn in the maternal passages. The focus of streptococcal origin seems to be the teeth, and it appears that the uterine mucosa often acts as an excretory organ for these organisms or their toxins. It may seem very unorthodox, but I am inclined to think that many of these uncontrollable menorrhagias with redundant mushy endometrium, and fibrosis uteri, and even carcinomatous changes, are often due to some toxic factor arising in this way in the system. Witness the association of mastitis (fibrosis) in Cases 6 and 7. One with streptococcal infection; the other with *B. coli* and uterine polypi.

Relation of Reported Cases to B. coli *Infection in Infants.*

Streptococci and *B. coli* have been present in several of the cases reported. So also in the mother of the case reported by Dr. Dewsbury. She evidently was in a very toxic state—her heart probably bearing part of the brunt of the poison. She was excreting streptococci by the breasts and in urine and lochia, and *B. coli* by urine and lochia. One wonders whether she had not some focus for her streptococcal infection in mouth or throat. If the biological history of a large number of intestinal diseases is investigated, it will very frequently be found that a clue to many of these cases is the presence of streptococcal infection in mouth, naso-pharynx, or sinuses. I believe that a great number of these *B. coli* infections are stirred up, or their exit from the intestinal tract made easier—by the injury inflicted upon the intestinal mucosa by the streptococcus or its poison. I believe, too, that the neuro-muscular paresis with resulting stasis is caused by the streptococcal poison and consequent putrefaction. Just as in some intractable staphylococcus infections no improvement is obtained until a co-existing streptococcal focus is cleared up, so also with *B. coli* infection; I believe there to be a symbiosis between them. Perhaps this is one of the reasons why Mr. D. P. Wilkie finds such benefit from prophylactic infections of the combined vaccine prior to operations on the lower intestinal tract.

Although the condition of the mother amounted to a bacteriæmia, no organisms were reported from the blood examination. Kidd, however, has shown that the *B. coli* germs can be found in the blood-stream if the blood is examined about the time of the rigor. There is no mention of the child being jaundiced as one would expect if the infection was from swallowing of infected mucus. It seems to have developed on the third day, after several feeds of breast-milk which was heavily infected with streptococci.

The two cases of mastitis (Cases 6 and 7) show the affinity of the streptococcus and *B. coli* germs (or their toxins) for breast tissue; also the affinity of these organisms for the physiologically associated organ, the uterus—as in Case 5.

Darlington.

THE TREATMENT OF SPRUE

BASED ON A NEW THEORY OF CAUSATION.

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Early in 1923 my preliminary communication on a New Theory as to the Causation of Sprue was published in the Transactions of the Royal Society of Tropical Medicine and Hygiene. By the kindness of the physicians to the Hospital for Tropical Diseases, Endsleigh-gardens, I have within the last few months been given opportunity for putting the treatment based on that theory to the test in several cases with such marked success that I think the time has come to place a few of them on record and to speak in a little more detail of the theory and its application.

Sprue is a disease which appears to be considerably on the increase in recent years, especially in the East; it leads to much sickness and incapacity, is the cause of extensive invaliding from the tropics, and is responsible for not a few deaths. Treatment of the disease is almost entirely empirical and the results very uncertain, return to the tropics being, in a large majority of cases, followed by relapse usually within a short space of time.

Case 1.—Male, aged 48, born in England; in South Africa 1902–05, in the West Indies (Jamaica) 1910–19, in China 1919–21. With the exception of an attack of enteric fever in 1918 he enjoyed excellent health until the onset of symptoms of sprue in 1920. During the next 18 months practically every known form of treatment was tried—milk, the Salisbury diet, liver soup, emetine injections, vaccines, yellow santonin, with only temporary benefit, any attempt to pass on to ordinary diet causing a relapse. This case was severe, all the typical symptoms being present—acidity, flatulence, marked mouth symptoms, large, pale, frothy, pultaceous motions, troublesome cramps in the limbs, loss of over 3 stone in weight. At one time, apart from general tenderness of the tongue, there were over 30 aphthous patches on the tongue, frænum, and buccal mucous membrane, and, judging from the pain on swallowing, probably along the œsophagus also.

New Treatment.—The patient was invalided to England, arriving March 22nd, 1922, and was taken into hospital the following day. Improvement followed a strict milk diet, but within six weeks of leaving hospital a relapse occurred in July, another in September, and a third in December, by which time the condition was almost as bad as it had ever been. There was troublesome acidity, with aphthæ in the mouth, a tender, raw, red tongue, and cramps. The weight had decreased by nearly 2 stone; the stools, which had become a little darker in the intervals between the relapses, though never normal, were again pale, large, and frothy. Calcium lactate, 10 gr. in cachets, was given twice daily, the dose being increased to 15 gr. a few days later, and then thrice daily. Some improvement followed, but in another fortnight, in spite of the continuance of the calcium, matters returned to their former state. Blood tests showed that the total calcium content was not diminished and the inference was that, if the calcium was at fault, the error lay somewhere in its regulation and metabolism. On Jan. 8th, 1923, the calcium lactate was reduced to 10 gr. three times a day, and a small dose, 1/20 gr. parathyroid extract (Parke, Davis and Co.), morning and evening. The symptoms were checked, but there was no definite improvement, so on the 16th the latter dose was increased to 1/10 gr. twice daily. There were then four very painful aphthæ in the mouth and a small tender papule. The latter usually preceded the ulcer stage by 48 hours or so. By Jan. 22nd the papule had not developed, but had disappeared, three of the ulcers had completely healed, and the other, the largest, was nearly well and was no longer painful, and the tongue was very slightly tender. Two days later the stools were formed, brownish in colour, and rarely more than one a day. There was a feeling of well-being, and there had been no cramps since the 20th. On Jan. 30th the parathyroid was reduced to half the dose, and the diet, which had been restricted to milk till the 24th and milk puddings subsequently, was increased to include fish, chicken, and vegetables. By Feb. 10th ordinary full diet was being taken, and on the 12th both drugs were discontinued. There had been no fresh aphthæ or cramps, and the stools were formed and almost normal in colour. The weight rapidly increased, and by March 10th had reached 2 lb. above the normal for the previous 15 years. Since then the patient has been on ordinary diet, doing full work, and there has been no set-back whatever, nor sign of any relapse.

This case has been recorded fully because it was the first in which the new treatment was tried. The remainder may be described more briefly.

Case 2.—Female, aged 40, married, two children. Born in Ceylon, came to England at the age of 12 years, returning to Ceylon in 1912 and staying there for three years, during which period she had an attack of dysentery and of dengue. In 1919 she went again to Ceylon, and had good health until May, 1921, when she suffered for a week with a sore and tender tongue. For the succeeding two months she was free from this, but thereafter had frequent recurrences, together with indigestion, heartburn, and flatulence, with large, pale, frothy stools.

New Treatment.—This state of affairs continued until September, 1922, when the patient was sent to England. A week later her condition was recorded as follows. Tongue sore, tender and red, with ulcers on frænum, cheeks, and gums, motions large, pale, frothy, especially in the early morning, but not infrequently during the day also. She was treated at home by restriction to milk diet, but though the number of motions was reduced they remained very pale, and the weight steadily diminished. She came into hospital on Feb. 15th, her weight then being 107½ lb. She was given calcium lactate, 10 gr. t.i.d., with parathyroid, 1/10 gr., morning and evening, together with a plain milk diet; in a week the aphthæ had cleared up and no fresh ones had appeared. The stools on admission were typical. At the end of the month—i.e., a fortnight after starting the treatment—the colour was coming back in the stools, though they were still pale. She was then given Benger's food in addition, and the heartburn and flatulence returned, but ceased when the food was taken off. The weight improved and by March 11th was 111¼ lb., and she was taking biscuits, fish, milk puddings, and eggs. She left hospital a fortnight later. All medicine was stopped during the first week of April. The weight continued to increase till it reached her normal (9 stone), and there has been no return of symptoms.

Case 3.—Male aged 62. Born in Scotland; went to the tropics (San Domingo) in 1888. In 1896 suffered from "ulceration of the mouth," which cleared up with local treatment. He had yellow fever in 1896; and returned home in 1898. Was in the West Indies again in 1905, 1910, 1912, and 1921. In 1909 he suffered from recurrent attacks of diarrhœa, with a tender and painful tongue and loss of weight. These symptoms recurred intermittently for the next 11 years. By 1921 the diarrhœa was persistent; the condition was diagnosed "intestinal catarrh," but did not yield to treatment. The following year a specialist diagnosed "chronic pancreatitis," but no treatment proved of any avail. In 1923 a third physician told him that the disease was sprue, and he was put to bed on strict milk diet. He remained there for four months; the diarrhœa was checked in some degree, but returned whenever an increase in diet was attempted. For two months he lived on milk and strawberries and thinks he benefited at first, but a relapse came on while this diet was being continued.

New Treatment.—On May 11th he came to the Hospital for Tropical Diseases, and, by the kindness of Dr. P. Manson Bahr, I saw him. He started the calcium lactate an parathyroid treatment on May 13th. The symptoms were typical—a sore and tender mouth and tongue, acidity, flatulence, large, pale, pultaceous stools. Within a week the diarrhœa ceased, the motions were formed, and the colour brownish. In a fortnight he was taking eggs, toast, Mellin's biscuits, milk puddings, baked apples, and bananas. Progress was uninterrupted, and he left hospital in June, having put on over a stone in weight. He went to stay at a hotel in Tunbridge Wells, and in September wrote to me saying that, as directed, he had gradually reduced the medicine and stopped taking it four weeks after leaving hospital, and had not had to return to it. "My diet," he writes, "has been just the same as that of everybody else in the hotel. . . . It seems to suit me quite well. . . . My weight has increased by another 4 lb., and I feel well." After five weeks in hospital he has apparently recovered from a disease which has troubled him for over 14 years.

CASE 4.—Male aged 21. Contracted sprue in India; in July, 1922, at Bombay, he suffered from diarrhœa with large, pale, porridge-like stools, indigestion, acidity and flatulence, and a raw tongue. This continued; he went to Simla in March, 1923, having then four or five of these motions daily. Emetine injections were given without producing any benefit.

New Treatment.—He was invalided to England, arriving June 7th. On admission to a nursing home he showed: Tongue raw, red and tender, fungiform papillæ prominent, abdomen distended, especially the lower part; he was passing very large stools (26–30 oz.), pale, frothy, and loose. Weight on June 19th 111 lb. He started calcium and parathyroid treatment on June 12th. By the 21st the soreness of the tongue had disappeared, and there were no dyspeptic symptoms after the 24th; by the 26th the stools were light brown in colour, only one a day, and the weight of them varied between 6 and 13 oz. He expressed himself as feeling very much better generally. At the end of the month he was well enough to go out for walks daily. His weight in successive weeks from June 26th to July 23rd, when he left the nursing home, was 112, 113, 118, 122½, and 128 lb. He ceased taking the medicine a fortnight later, and reported two months afterwards; he then looked and said that he felt thoroughly well; he was taking full diet, his weight was 154 lb., and he is about to return to India.

I have notes of six other cases, but to record them in detail would be practically a repetition of the above. The following case, however, ought not to be omitted as a set-off against the almost uniform success obtained in cases treated up to the present. This patient was in extremis when first seen, and the treatment was tried solely to satisfy the heart-rending request of the patient's husband that "something might be done as she seemed to be dying." Even here an unexpected temporary improvement followed:—

CASE 5.—Female aged about 50. Had suffered from sprue for many years; was in hospital on that account five years ago and improved, but relapsed very soon afterwards and had never been well since. Normal weight about 126 lb. When seen on April 14th she said she felt very weak, and her weight was only 79 lb.; her mouth was very sore, there were several aphthæ, and she was taking hardly any nourishment at all because of pain and weakness. She was intensely anæmic and very short of breath. She was passing five to six motions daily, pale, bulky, pultaceous, and frothy.

New Treatment.—She was at once put on the calcium and parathyroid, and a week later expressed herself as feeling "better in herself" than she had done for many months; stools three daily, less bulky, some formed, becoming darker in colour, not frothy; the flatulence was much less troublesome, and the ulcers in the mouth had cleared. In another week the stools were reduced to two or three daily and were more formed. Although she said she felt better and would like to get up, she was too weak and was obviously losing strength. Her weight on April 28th was only 73 lb. She became progressively weaker and unable to take nourishment, and died a few days later.

Remarks.

The average stay in hospital of the cases recorded above has been five to six weeks, and none so far have relapsed. The intervals since cessation of treatment vary between two and eight months. This is in marked contrast with the usual histories of as many months in hospital as weeks in the above cases, succeeded by a prolonged period of restricted diet and a constant tendency to return of symptoms, if not, as in many cases, an actual relapse.

The theory, as stated in my preliminary communication referred to above, is this: In the endemic areas of the disease conditions are such that there is an excessive proteid diet (in India, Ceylon, and other parts of the East), or a diet containing an excess of fat largely contributed to by the method of cooking the food (in China and the West Indies). Excess of proteids stimulates over-production of acid in the gastric juice and may lead to habitual over-acidity. The entrance of acid into the duodenum stimulates the production of secretin, which in turn leads to over-stimulation of the pancreas, and, secondly, to an upset in the balance of other endocrine glands, among them the parathyroids and salivary glands. Evidence is accumulating that endocrine disturbance and alimentary toxæmia are frequently associated, and all acute and chronic toxæmias react in some degree on the parathyroids, causing disturbance of calcium metabolism and a consequent decrease in tissue resistance, a vicious circle being thus set up. It will be of interest to speak of a few of the chief questions here raised in a little more detail.

1. *Evidence of Over-stimulation of the Pancreas.*—In the fæces the ratio of neutral fats to fatty acids is normally as 1 is to 2. In cases of pancreatic disease and insufficiency this relation is more than reversed and may be as high as 15 to 1. In conditions of increase of pancreatic action one would expect a greater splitting up of neutral fats and the proportion of these to fatty acids would be less. Now, in a mild case of sprue, the proportion is found to be as 1 : 3 or 1 : 4; in a moderately severe case as 1 : 4 or 1 : 5, and in graver cases even up to 1 : 9. Confirmation is also obtained clinically. In several instances, as improvement took place, the nutriment was increased by the addition of pancreatised food with the idea that this would help digestion and enable the patients to put on weight. Within a very short time—in some at least, especially in those with hyperchlorhydria—symptoms reappeared, and such patients have again and again stated that they wished to go back to milk as they felt worse after each meal of this food. Again, the work of others has shown that the internal secretion of the pancreas reacts on other endocrine glands and on the salivary glands. I suggest that the sore and aphthous condition of the tongue and mouth may in part be due to altered salivary secretion, for the reaction of this in severe cases is acid to litmus. The glossitis and stomatitis are also ascribable to alimentary toxæmia (see below). In Case 1 it was a notable feature that a bout of excessive acidity preceded an aggravation of the mouth condition, and a fresh crop of sore spots would appear within 48 hours.

2. *Evidence of Errors in Calcium Metabolism.*—This term is preferable to "calcium deficiency," because in the majority of cases in which blood-calcium estimations were carried out the *total* calcium content was approximately normal. Decrease of calcium, as the researches of Vines have shown, may be of two types: It may be absolute when the total amount in the serum is lessened, or it may be relative when the total is unchanged but some of the calcium is bound, so that the complex formed is not assimilable by the tissues. In either case the effect on the somatic cells is the same; they suffer from a deficiency of calcium which they can utilise. The "ionic" calcium of the blood becomes deficient in cases where chronic toxæmia is present, and this is what, in my belief, occurs in sprue. The striking factor common to the tetany, cramps, œdema (in severe cases), the loss of weight, excess of excretion of calcium salts in the fæces, the ulcerative condition of the alimentary tract is their relation to deficiency or faulty metabolism of calcium. As stated, the total calcium proved normal or nearly so in the cases tested, and the coagulation time is not extended, so that the probability is (further tests are to be carried out to confirm this) that there is a change in the normal relations of the "ionic" calcium to the "coagulative" or "combined." When calcium is administered in sprue the increase makes up temporarily for the deficiency and the symptoms improve, but it was found repeatedly that

this improvement was transient, and the dose had to be increased. The total calcium of the blood being about normal, one naturally inferred that it was the regulation of the calcium which was disordered; accordingly, the dose prescribed was reduced, but parathyroid extract was given at the same time, with the results detailed. The parathyroids have two functions, (1) detoxication, and (2) control of calcium metabolism: but these cannot be rigidly separated. The action of parathyroid substance is physiological and is not apparently specific against any one organism or toxin. "Its action is to place the tissues of the patient under conditions more suitable for the performance of their normal functions and for combating the effects of toxic processes"; also "when there are lesions due to such (toxic) states healing does not commence until the ionic calcium of the blood approximates the normal figure" (Vines). Hence, the rationale of the treatment above—bed, on a diet of milk (partly because of the ulceration, partly because of the calcium content), and the administration of calcium and parathyroid until the mouth ulcers are healed, when one may infer that the intestinal ulcers are on the mend also, and an increase in diet is then allowed. It is essential that the parathyroid should be guaranteed. The antagonism between thyroid and parathyroid is well exemplified in this disease. If an impure product is used the symptoms return almost at once.

3. *Evidence of Alimentary Toxæmia.*—This condition is practically self-evident. The acidity, the flatulence, the secondary anæmia, sometimes of severe degree, and the ulcerative state are all indicative of this. Further, the bacterial examination of the fæces reveals unusual organisms, monilia in one case, special forms of streptococci in another, aberrant coliform bacilli in a third. Such toxæmic conditions react, as Vines has shown, on the parathyroids. Possibly the special organism isolated constituted, as it were, the last straw which broke down the function of the over-worked parathyroid, and hence the benefit reported by some from the injection of autogenous vaccines in sprue cases (see below).

A few words may be written relative to the modes of treatment chiefly in vogue at present.

(*a*) *Milk.*—This, as already stated, constitutes a non-irritating food, allows the ulcers to heal, and is a good method of administering calcium. During the first fortnight or so it is practically the only food under the form of treatment indicated in the present paper, and nothing further need be said.

(*b*) *Salisbury Treatment.*—This diet, consisting of scraped meat and hot water, would probably act best in cases associated with hypochlorhydria, as by a radical alteration of diet it may bring about a change in the intestinal flora and so remove the source of the toxæmia. The régime is persisted in for six weeks or so, and then an increase of diet is very cautiously permitted with warnings to return to it at the first sign of recurrence of symptoms. Cure is rarely prolonged.

(*c*) *Emetine Injections.*—Emetine was probably given primarily because many cases give a history of previous dysentery. Its action as regards sprue in those cases which have come within my cognisance has been nil.

(*d*) *Liver Soup.*—This is perhaps given on the erroneous idea that, because the stools are pale, bile is absent and the liver is not acting; the prescription is analogous to that of ovarian extract for sterility, and similar barbaric empiricisms. Some writers, it is true, report good results, but we must bear in mind the fact that it is usually given with milk and other nutriment, while no reason has been given for ascribing any specific beneficial effects to the soup.

(*e*) *Vaccines.*—These, as has been pointed out, probably prove beneficial (in the rare instances in which they do so) by putting out of action the chief organism responsible for the toxæmia and so relieving the overworked detoxicating function of the parathyroid. This gland is again enabled to cope with its work, but the effect of vaccines is uncertain and relapses are common. Thus may be explained the fact that the vaccines employed and found beneficial are so varied, one finding a streptococcus of some sort, another a monilia, a third some form of *Bacillus coli*. Those of the above-recorded cases who had had vaccines derived no benefit at all; moreover, these organisms are probably only subsidiary, because nearly all the above cleared up without the use of any vaccine, with great rapidity, as the histories show, and so far there have been no relapses.

(*f*) *Strawberry Cure, and* (*g*) *Santonin.*—These are given empirically. I know of no rational explanation of their actions. They are never employed alone, so it is difficult to say, in fact it is merely a matter of conjecture, as to what degree the amelioration, if it occurs, is ascribable to the fruit or the drug.

Finally, though the clinical results have been so fortunate, there are several questions as to the pathogeny of the disease still calling for elucidation. Such, for example, as:—

1. Why does not the disease occur in Europe? Possibly it does.[1] Pellagra was for a long time overlooked in this country. All of the cases of undoubted sprue which I, personally, have seen have resided abroad, though some had returned from the tropics several years prior to the onset of symptoms. But the condition spoken of as cœliac diarrhœa bears a strong resemblance to sprue—the loss of weight, the bulky, pale, frothy stools, the flatulence, and dyspepsia. One patient who had suffered for months in this way was put upon the same line of treatment as that indicated above and told to report again later. She, however, sent word to say that the symptoms had cleared up in less than a fortnight, and that she felt well, but would come again should the symptoms recur. Several months have elapsed, but there has been no recurrence.

2. Why are no cases reported from Africa? Whether the disease is really unknown in Africa I am not able to say, but none have come to my knowledge.

3. What changes take place, or fail to take place, in the bile to bring about the pale colour of the stools? It was formerly believed that this was due to absence of bile, but chemical examination shows that bile is not absent but is present as leucourobilin, and the gall-bladder contains normal-coloured bile.

4. Are there two distinct classes of sprue? As already mentioned, cases arising in India and some other parts of the East are often associated with an excess of proteid diet and hyperchlorhydria; these are the patients who complain most of a recurrence of symptoms when given food with liquor pancreaticus. Others develop on a fatty diet with organic hyperacidity and hypochlorhydria. Both suffer from dyspeptic and toxæmic symptoms, and so both do well on the calcium and parathyroid treatment, but the latter can take pancreatised food, sometimes at least, and it would appear, therefore, that in both there is intestinal toxæmia with upset of calcium metabolism and parathyroid function, but that in the former there is in addition the endocrine disturbance secondary to pancreatic over-stimulation. If organic acids (and not merely inorganic, as hydrochloric acid) can also bring about excessive production of secretin on entering the duodenum, then this difference vanishes.

It will be of interest to know whether similar felicitous results can be obtained when the treatment is carried out on patients in countries where the disease is endemic.

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[1] Van der Scheer states that it does occur in Holland and Germany.

CONGENITAL DISLOCATION OF THE HIP: A NEW APPARATUS.

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IT is the custom at the present time to treat congenital dislocations of the hips, after reduction, by a plaster-of-Paris apparatus. There are objections to this method. In the conduct of a normal case this has to be removed and a fresh plaster applied for each new position into which the hip-joint is brought as the treatment proceeds. Apart from the time and skill required of the surgeon in charge of the case, great care is demanded in the nursing of the child in the intervals. A plaster apparatus is at any time a cloak which hides most effectively all that is underneath, and in the treatment of congenital dislocations of the hips this is undesirable both from the surgeon's point of view and from the mother's. It cannot be said, for instance, that the plaster, when applied, is proof in all cases against subluxations ; for when the inevitable muscular atrophy sets in it is apt, unless frequently inspected and reapplied when necessary, to fit loosely round the joints and to allow room enough for the dislocation to recur.

Nor does the plaster permit of easy radiographic examinations ; on the contrary, it fogs all such procedures, and is most troublesome when it prevents the ready detection of minor degrees of recurring dislocation. From a hygienic point of view it leaves much to be desired. Such plasters are apt to become impregnated with urine or fæcal matter, when they smell, and soften and fray at the edges. I have also known them to harbour lice. The risk of bedsores is real, and ordinary care of the skin is difficult. Massage to the encased limbs is practically impossible, so that as plaster succeeds plaster the limbs shrink more and more, and only a prolonged course of after-massage can restore the tone of the weakened muscles.

With the object of improving these several defects I have tried to replace the plaster apparatus by a mechanical one which would be of use throughout the period of treatment. To be efficient this should (1) be applicable to all the positions required in the treatment of congenital dislocations ; (2) effectively control tendencies to redislocation ; (3) not interfere with X ray examinations ; and (4) permit of easy access to the surface of the limbs for nursing purposes and massage. The appliance consists of a body-frame and two jointed thigh-pieces which fix the lower limbs at the angles required.

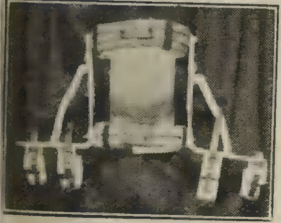
FIG. 1.—Both thigh-pieces fixed at 90° abduction and 90° flexion.

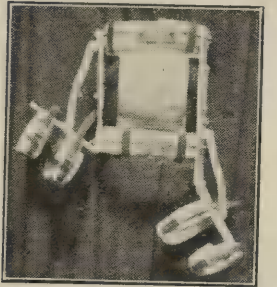
FIG. 2.—Right thigh-piece abducted to 90° and flexed to 50°. Left thigh-piece at 45° abduction and 150° flexion.

Body-frame.—Two light slotted metal bands which encircle the thorax and the pelvis are fixed behind to the upper and lower extremities of two flat metal bars set vertically about 3 inches apart. This constitutes the frame. It is padded to protect the patient from pressure both behind and within the encircling girths, and the pads are covered with leather. Double nuts and screws are used to fix the horizontal bands, and there is always ample room for respiratory movements.

Thigh-pieces.—Each thigh-piece is formed from two bars of metal of equal length to those of the frame, which are united end to end by a simple hinge-joint. The upper bar or arm serves a double function ; it fixes the thigh-piece to the frame and can be moved along the slotted bands of the frame, to which it is fixed by screws and nuts, thus supplying varying degrees of abduction, ranging from 0° when fixed in front, to 90° when fixed at the side. When fixed it also adds to the rigidity of the apparatus. The lower bar or arm bears two leather-covered metal bands which strap on the thigh above and below the mid-point of the femur. Control of the thigh is thus obtained, and by fixing the angle at the hinge-joint the degree of flexion at the hip-joint can be securely maintained.

Two methods of fixing the hinge-joint of the thigh-piece at any angle, from 45° to 180°, are applicable (1) by means of a lattice screw-joint, and (2) by using a cross member. The former is a beautiful piece of mechanism, giving nice adjustments of the angle, but is rather an expensive addition. The latter is simpler and inexpensive, and fulfils all ordinary requirements. It is the method adopted here, and consists of a piece of metal with swinging flanges at each end. One of these is fixed to the centre of the lower bar of the thigh-piece, whilst the upper can be screwed to the upper bar at any point in its length, there being a series of perforations in it through which the screw can be passed. As this end is moved up or down, the angle is diminished or increased. Flexion to correspond with the axillary position is as readily obtained as right-angled flexion or smaller degrees. The patient shown in the illustration has had her right thigh thus fixed, though it is now possible for her to assume an angle of flexion of 80° without subluxation.

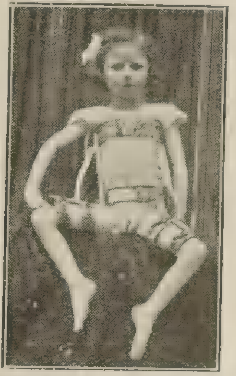
FIG. 3.—The apparatus in place on a patient with double dislocation.

In Fig. 1 both thigh-pieces are fixed at 90° abduction and 90° flexion. In Fig. 2 the right thigh-piece is shown abducted to 90° and flexed to 50°, whilst the left thigh-piece is in a position of 45° abduction and 150° flexion. In Fig. 3 the apparatus is shown on a patient in the Sick Children's Hospital, Newcastle-upon-Tyne, who had a double dislocation and came under treatment when 4½ years old. The left hip gave no trouble ; the right hip showed a constant tendency in plaster to subluxate, but this has now been corrected. It will be noticed that double pieces of metal have been used for the upper arm of the thigh-piece and that the hinge-joint on the left in Figs. 2 and 3 is dropped below that of the right. This is only possible if double bars are used, and is only needful if one hip has to be kept flexed up to less than a right angle longer than the other. The tight structures round the lower part of the highly flexed hip-joint tend to drag the opposite side of the pelvis downwards away from the pelvic band ; consequently also to remove the opposite hip-joint from its true relation to the controlling thigh-piece. By lowering the angle of the hinge to a corresponding degree its distance from the hip-joint is kept constant, and the lower bar retains the thigh at the fullest correction. The apparatus is easy to control ; it is comfortable and cleanly ; it is lighter than plaster as usually applied. Easy access is provided to the child's limbs, and the buttocks and perineal region are left free. It permits of untrammelled radiographic examinations and is moderate in price.

I have to thank Mr. F. G. Hilliard, instrument-maker, Gosforth, Newcastle-on-Tyne, for care and patience taken in making the apparatus.

HIGH BLOOD PRESSURE.[1]

BY E. M. BROCKBANK, M.D. MANCH.,
F.R.C.P. LOND.,
PRESIDENT OF THE MANCHESTER MEDICAL SOCIETY.

BY high blood pressure I mean arterial tension which resisted a pressure equivalent to 160 or more millimetres of mercury before the pulse-wave was obliterated, the normal being 120–140 mm., as estimated by a sphygmomanometer of the arm-band type, or the compact portable little instrument invented by Leonard Hill, which has the great advantage that, being applied only to the anterior surface of the wrists, it does not cause the unpleasant sensations of the band instrument in sensitive women, and it does not induce threatenings, let alone an actual attack, of angina pectoris as an arm-band instrument may do. I am not about to relate any scientific observations, but to give you the chief, if discursive, impressions gained from carefully looking over my notes of the last 160 cases of patients with blood pressure above 160 mm., with and without obvious organic disease; to consider the various, and generally unsatisfactory, methods of treatment; and especially to mention a new form of treatment which is giving encouraging results—namely, diathermy.

My observations have been entirely confined to systolic high pressure. I have taken a pressure of 160 mm. as being abnormal, even for a person of 80, because I do not adopt without qualification the aphorism that the second and third figures in this measurement may be those of a person's age, and yet be normal; in other words, that it is normal for a person of 60 or 80 to have a blood pressure of 160 or 180 respectively and that no danger lies therein.

Is too much Attention given to High Pressure?

Some practitioners think that a great deal too much fuss is made of high blood pressure, and we certainly find it displacing appendicitis in popular literature. If this means that we need pay no attention to high blood pressure in a patient who comes complaining of subjective symptoms, and other symptoms which are objective to us, caused by it I do not agree. If it means that there are some adults of 40 or 50 years of age of either sex, who go about leading ordinary active lives, playing games, and apparently in robust, untirable health with blood-pressure of 160 or more, unknown to themselves or anyone else, and that they have a chance of living their normal expectation of life, I do agree. But there are only a few adults who do this. Although high blood pressure is common in the consulting room, it is only found in a comparatively small number of elderly people over 60 who have never had any symptoms of it in their lives, and in examining supposed healthy people of the commercial classes for insurance I do not believe, judging from my own experience, that one man or woman applicant in 25 has a blood pressure above 140, and certainly not one in 40 has to be refused a policy because of high pressure.

High blood pressure is often found to be present in persons who live an active, untirable life, thinking themselves of robust constitution until an abnormal strain adds some extra foot pounds of labour to a willing but overworked heart, and this long-suffering organ breaks down. To relate one of many instances, a very active gentleman, aged 53, was quite well until October, 1922, when hurrying three-quarters of a mile to catch his train he felt great oppression in the chest, and could hardly get along the last 100 yards. His blood pressure when I examined him some weeks after was 200, and he has never got back to his usual health. I therefore do not look upon high blood pressure as a negligible condition, but one which ought to be recognised as soon as possible and reasonable precautions taken against danger from it. Many a life can be prolonged by such precautions, and the sooner they are taken the better, because the longer the high pressure exists the more difficult it is to deal with it. As I have said, people with high pressure are often untirable in work or exercise. When I read "Wild Sports and Natural History of the Highlands," by Charles St. John, saw what long expeditions he used to make, even tiring his gillies, I wondered what sort of blood pressure he had, and on reading his life I found that, for years, in his 40's, he suffered grievously from occasional violent headaches, and when he was 44 he had a stroke, paralysing the whole of his left side, and that he died three years later. This looks very much like high blood pressure. I always suspect people that I know of as being tireless workers of having high blood pressure, but there are many very busy men who have a perfectly normal pressure.

Heredity.—Unfortunately, none of my patients could tell me whether any of their forbears had suffered from high pressure, but this condition must run in families like many other pathological conditions do. One only could tell me that his father, who died at 85 of a stroke, had it.

Family history, however, has a great influence in prognosis in high blood pressure and expectation of life, as it has in all ailments. I think more and more of its value in life insurance work. High pressure is far from being incompatible with old age. Thus of my 160 cases 22 lived to be over 70. One gentleman of 78 had a pressure of 240. One woman, aged 75, had a pressure of 210. The prospects of life in an adult in the 50's or 60's with high blood pressure are much better, when there is a family history of longevity, than they are when there is a history of death of a parent in the early 50's, especially from apoplexy. To take one example only.

A doctor under 50 with pressure of 190 gave this history. His father was alive last year, aged 82, and mother 74. Three paternal uncles were alive and over 74, a paternal aunt died at 79. His mother's mother died at 93, and her father at 70. Quite recently I examined a man of 65, for insurance, and was instructed to pay particular attention to his circulatory system. His heart was practically normal; his blood pressure was 160, hence the special note from the insurance company, which evidently was not a thick-and-thin believer in higher pressure for older ages. His arterial walls were normal; no albumin or polyuria. A life-long abstainer. There was no indication of high pressure in the family history. Father died aged 73, after an accident. Mother died, aged 56, of cancer; a brother at 44, and another at 61 from unnecessary causes, not pressure, and a sister died at 62 of cancer. I went back to the previous generation, and found his four grandparents had totalled 320 years, all living to about 80. One paternal uncle died at 86, and other uncles or aunts lived to the 70's and 80's. So I advised the office to accept the proposal in spite of the high pressure, and this they did.

A family history of death from apoplexy in the fifties and early sixties is not uncommon. I did not like the prospects of life of a man in the fifties with a blood pressure of 160, who had to lift heavy weights in his business, and whose father died before 60 of a stroke, brought on during a fit of coughing. I had to deal with such a case once.

If the radial artery shows evidence of pathological changes in its walls, or if there is any nephritis present, the outlook is not as good as in those cases, and they form the majority, in which there is no apparent organic disease.

Therefore I do not think high blood pressure is a negligible condition at any time or in any person.

Age Incidence.—I will not trouble you with a lot of statistics, but will merely refer to what interests me from a review of the 160 cases I dealt with. All the cases were seen in private practice and amongst the commercial classes. Fifty-three were in women and 107 in men. The youngest man was 40 years old, and he had no obvious disease; his pressure was 180. The youngest woman was aged 38, and she had no albumin or sugar in the urine. Her blood pressure was 190, and she had a good family history. There were nine men with pressures varying from 160 to 180, of ages between 40 and 45. The oldest man was 76, and his pressure was 180, and the oldest woman was 79, with a pressure of 190. The highest pressure was one of 280, in a woman of 53, and a man of 60. I have measured over 320 in a cotton-mill working woman. Fifty-five of the cases occurred between the years of 50 and 60, 54 between 60 and 70, and 22 between 70 and 80. There is a slight increase in the average pressure of the oldest decade as compared with that of the youngest group—namely, 200 to 180—but not much.

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[1] Abstract of the Presidential Address delivered before the Manchester Medical Society on Oct. 3rd, 1923.

Symptoms.

I now come to the more important subjective and objective symptoms of high pressure.

Nervous Symptoms.—Complaints referable to the central nervous system are very common—headaches; irritability, sometimes mental changes; transient dizziness or transient blindness coming on at any time, or especially when stooping; epileptiform seizures, either with convulsions or in the petit mal form; "queer bouts" without loss of consciousness, but with inability to move; transient losses of consciousness for a few seconds; pins and needles or a sensation of cold in the limbs and face; sleeplessness, or disturbed sleep; and what is very important, transient and disappearing monoplegia, or aphasia, or even hemiplegia, which clears up almost completely, leaving only a slight local paralysis. One gentleman, after bathing in the sea, had an attack of vomiting, with a complete right hemiplegia. I saw him the same morning, and he had a very high pressure. He improved under treatment, the arm alone being weak in the end. The transient slight paralyses are very interesting, and may occur on and off over a period of two years. I meet with them very rarely in any other cerebral lesion, and then only in senile arterial degeneration. I do not know how they are caused; but Prof. Shaw Dunn and Dr. Core will, I hope, give us their views on this matter. A transient spasm of the blood-vessels of the cortex, if such is possible in high tension, would explain them. Thrombosis of the cerebral vessels would explain them, as it does many cases of cortical-area paralysis which occurs when the blood pressure is low. But whatever causes these transient paralyses, whenever I am told about them I expect to find high pressure and am generally right.

Hæmorrhage from mucous surfaces is common, especially from the nose, hæmorrhoids, or the uterus, and, less commonly, the stomach and intestines, and bladder. Such bleeding acts as a safety-valve, and it is a problem of treatment as to whether that from piles or the uterus should be stopped by operative measures. I have not yet had to stop bleeding from the nose by plugging. One patient, a man over 70, was relieved by profuse bowel hæmorrhage which "flooded the bath-room floor," so his wife said. He undertook more public duties than he ought to have done at his age, and whilst presiding at a public meeting had a hæmorrhage which flooded his ventricles this time, and he died in the infirmary. A lady, aged 38, with pressure of 190, is at her worst before her period begins: then she has menorrhagia for two weeks and relief of symptoms. Epistaxis, as you know, is often alarmingly profuse in these cases, sometimes going on for one and a half to two hours, but not uncommonly no other attack occurs for a couple of years, or indeed for several years—over five in one elderly lady. I am surprised that hæmorrhage does not occur much more frequently. It seems to me to be wonderful how the blood-vessels, especially the small arterioles in the mucous membranes or in the brain, can stand a pressure of 200, or over 300 instead of 120, without bursting, and yet they do in more than half the cases.

Heart.—The heart is always more or less enlarged in chronic high blood pressure, sometimes to twice or three times its normal size. Sometimes the en-argement is slight and very difficult to make out. t may extend into the left axillary region, and I have been astonished on several occasions to see how big it has got without attracting attention. In the early stages it is pure hypertrophy, and then no trouble may arise from the high pressure, but eventually muscle failure will develop and dilatation follow, necessitating a visit to a doctor. Its forcible action may distress the patient, but time and again I have been surprised to find that no discomfort has been felt from the greatly enlarged heart. Valvular disease of the heart was ascertained to be present in only 11 cases, and in most of these it was mitral incompetence. It is surprising that the mitral valve does not dilate more often under the very severe stress it is put to. The blood pressure in all these cases was very high—190 in one case, over 200 in most, and as high as 280 in a man of 60. Slight aortic obstruction was present once only, and naturally I found no case of aortic incompetence, such a condition being incompatible with high blood pressure and life.

Bruit de galop was found in 12 cases, and I look upon this as an indication of cardiac muscle failure and a sign of grave prognosis. At the same time I have been surprised to find how much can be done for people with galop rhythm by judicious digitalis and dilator treatment. Diathermy also assists in their relief. Most of these patients had a blood pressure of over 200.

Auricular fibrillation occurs in a small percentage of cases. It may be merely a coincidence, but as we do not know all the causes of the disturbed contraction of the auricle it is possible that what causes some cases of high pressure may also set up the circus movement of the auricular muscle. It is sometimes very difficult to recognise high pressure by the finger only in auricular fibrillation when the pulse waves are unequal in volume. I have been somewhat surprised to find that the larger beats may resist a pressure from the sphygmomanometer of 200 mm.

Angina pectoris may be the first indication of high pressure. The pain may be slight like indigestion or of the severest nature. It occurred in 22·5 per cent. of men, and 13·5 of women, in my series almost twice as often in men, which is not surprising when we remember that the exciting causes of anginal pain in high blood pressure is overworking an abnormal circulatory apparatus, and business men are more likely to do this than women. Two of the women also led very active lives, both of them managing and serving in a butcher's shop, which is very hard work.

Albuminuria in my experience is more often absent than present in high tension. I ask all cases of high pressure if there is any nocturnal polyuria or the regular necessity to pass water two or three times in the night with the idea that if there is it means that there is deficient secretory capacity on the part of the kidneys from chronic disease which makes them unable to excrete all the urea in the daytime, and requires them to work overtime at night to clear up arrears. In asking for this symptom, care must be taken to discount the effect in the night's excretion of urine of a tumblerful of milk or water, taken just before bedtime, which generally only causes one disturbance of sleep.

Is it Advisable to Reduce High Blood Pressure?

The question is often asked, Is it advisable to try and reduce high blood pressure? My answer to this is that it depends on the personal and family history. If the high pressure is causing symptoms which send the subject of them to the doctor, and if there is a family history of early death from causes attributable to high blood pressure, such as apoplexy, an attempt must be made to reduce it; but if there are no symptoms and the condition is only found accidentally, and if there is a history of longevity, I should not attempt to reduce it; merely give some general advice as to diet, and avoidance of conditions likely to increase the already high pressure. Some patients are not comfortable if the pressure they have been used to for years is reduced materially. In between these two extremes are cases which must be dealt with on their own special indications for treatment.

Treatment.

We must warn the patient about the dangers of hurried exertion and excitement without alarming him, and advise him to lead a careful, quiet life. He should not necessarily give up his business, and he may even play mild golf when the pressure is not above 160 or 170, and there is a good family history. Some mental occupation to keep their minds off their symptoms is good for these people, and many business men have no hobby to turn to if they retire. If the successful Lancashire man's maxim can be brought into practical application so much the better—organise, deputise, supervise—supervision or consultation occupies a man without hard work. It allows of easier hours, and does not require daily attendance at the office if he does not feel quite fit for it, and that is a very great deal in prolonging life. All public work, especially if exacting or liable to work up excitement in contentious debates on councils, lay, or church, and all rush engagements must be given up. Exposure to cold and walking against strong winds should be avoided. The lives of many people with high pressure are like what John Hunter said his own was: "At any person's mercy," and the excitement of angry controversy may cut them short suddenly as it did John Hunter's, though I do not know that the latter had high pressure as well as mitral stenosis and atheromatous coronary arteries.

Remove Possible Causes.—It is necessary to remove any abnormal condition which may be lowering vitality or producing subjective or objective signs of disease. One very common condition is oral sepsis, such as pyorrhœa alveolaris, deep-seated suppuration at the roots of teeth, especially crowned teeth, or receding gums. Whenever I suspect sepsis I have the teeth examined by X rays. One man had broken down with ill-health of uncertain origin. I found a pressure of 190, and as he had receding gums I had an X ray examination made, and three dentists advised removal of all the teeth. This was done in the early part of the year. Two months later the pressure was 150 mm. only, and the man was back at his work, and is now doing the full work of a busy lawyer.

Eyestrain may be a contributing cause of high blood pressure, and whenever I suspect it I have the eyes examined by a specialist. Eyestrain can do much harm and make chronic invalids of people, but that is another story, and I will not go into it here.

Our treatment of high blood pressure is greatly handicapped by our ignorance of the real cause in the great majority of cases—that is, in those with no organic disease. I will pass over the treatment of those cases which are associated with chronic nephritis and arterio-sclerosis, and they form the minority, after merely saying that they must be dealt with on general lines of treatment of these diseases, with special attention to any symptoms calling for relief. A great difficulty is our imperfect knowledge of the interactions of the secretions of the ductless glands on the functions of each other, and especially on the suprarenal bodies. We have learned a great deal lately about ductless glands and activating bodies, but as it ever is, the more we get to know, the more we find there still is to know. The nature and mode of action of the secretions of ductless glands and of activating substances is still but an opening book with many of its leaves stuck together. If one ductless gland goes sick it does not supply the full amount of secretion that is probably necessary for the production of the secretion of the other glands, and the whole balance of work is upset. As we do not know which gland is at fault, it is difficult to tell which of them to give, to restore the balance. Polyvalent glandular pharmacy or a dose of therapeutic grapeshot, though of use in a few cases, is not as helpful as we should like it to be.

Diet.—I really doubt whether special forms of food play much part in producing high tension, but I advise a minimum consumption of butcher's meat and of coffee or tea. A man who habitually over-eats and over-drinks himself at breakfast, lunch, and dinner is more likely to develop high tension than a person who is temperate. Uncooked apples are good because they take up room, satisfy the appetite, and have no vices. Other fruit and plenty of green vegetables, cooked or in salads, are good. I generally tell people to eat in moderation plain substantial food which they know suits them. I do not consider that one glass of good sound very light wine, red or white, at the meals, or a glass of whisky at present-day strength at night does any harm, nor does tobacco in moderation. It does no good in the long run to cut a man off all the little comforts.

The nitrite group of drugs relaxes spasm of involuntary muscle and reduces arterial tension more or less, but generally less than more, and only temporarily, in high blood pressure. I never know how these drugs will act. I have seen excellent results follow the administration of a mixture containing a grain and a half of each of the iodides of potassium and sodium, and a grain or two of nitrite of sodium. Sodium nitrite is, however, an unstable compound, and likely to be inert unless obtained at the best chemist's shops. Therefore I often use one or two drops of liquor trinitini in place of it. Erythrol tetranitrate acts for a longer time than sodium nitrite. A good tablet containing sodium nitrite, erythrol tetranitrate, manitol nitrite acts best of all and is stable; it also is not as objectionable as many patients find the nitrite mixture to be. I should say that some patients find any nitrite treatment unpleasant. Some physicians recommend a $\frac{1}{4}$ gr. of calomel three times in the day for the first three days of each week. Others, a draught of 10 gr. of potassium nitrate with 20 of potassium bicarbonate in a tumblerful of water first thing in the morning. It is a good plan to secure a watery examination of the bowels each day by a saline aperient.

Artificial bleeding by venesection relieves tension temporarily, but it is necessary to remove a pint or two according to the bulk of the patient. Perhaps we do not remove enough, for I believe that if some natural bleedings from the nose, which I have seen going on for a couple of hours, had been measured they would have amounted to more. Wet cupping is futile; one patient had his life made miserable by doing this to himself monthly on the advice of a French doctor.

Iodine in the form of iodide of potash, but especially in oily or albuminoid combination or in colloidal form, is often very effective in high blood pressure. It is my stock drug for high pressure with or without arterio-sclerosis. I am sure I have used it many times with success in people over 60 years of age who complain of dizzy attacks, aphasia, or transient paralyses, and I believe its administration for years to be of much value in older people whose blood-vessels are getting atheromatous. It may act by preventing the blocking of arteries or by promoting absorption of any degenerative changes already present, or it may act by making good a deficient supply of iodine resulting from defective thyroid secretion. I do not know how it acts, nor do I care; but on the principle that it often does good and does no harm I use it, and with much success in chosen cases. When given in oily combination it rarely causes iodism as the potash compound does, even in people very susceptible to the action of the latter.

Digitalis.—I use digitalis in all these cases of high blood pressure which show signs of cardiac muscle failure—namely, anginal pain, shortness of breath, dilatation of the heart, and gallop rhythm. The heart very often is greatly enlarged—to twice or three times its normal size—and it often has a gallop rhythm. Digitalis in the form of a granule of 1/240 gr. digitoxin, or a tablet of digifolin (which contains the watery soluble constituents of $1\frac{1}{2}$ gr. of digitalis leaves and is rapidly excreted) given every morning is most useful. I have been surprised at the good results obtained for a time at any rate. It is a disputed point as to whether digitalis increases arterial tension in men. Pharmacologists say it does not. Clinically I have never known it do so, and it does help the failing heart.

In *anginal* cases we must help the overworked heart by digitalis. All patients with high pressure, but anginal cases especially, must avoid all opportunities of hurry, flurry, and worry, dress warmly in winter, take light substantial meals, avoid flatulence, and keep the bowels open, and they may live for years. Anyone with anginal pain of any degree should avoid over-eating, and should take time over meals, rising with an appetite rather than feeling that too much has been eaten. In my experience this applies especially to breakfast, for several patients have complained of the pain in the chest and shortness of breath coming on when hurrying to catch the train in the morning.

Surgical operations are often called for in subjects of high pressure, and the danger from a general anæsthetic naturally arises. Hæmorrhoids, not necessarily caused by the high pressure, not uncommonly occur and bleed—and in my opinion they should not be removed unless they cause discomfort from their size and position or become painful. Bleeding from the rectum is one of the simplest and cleanest of nature's safety valves. It generally occurs only when the bowels are opened, and the patient is all the better for it. I am doubtful whether curetting for metrorrhagia in high pressure cases does any permanent good. Chloroform and ether as general anæsthetics reduce blood pressure, and I have never heard of apoplexy taking place during their administration, and there must be scores of people with high pressure who are anæsthetised by their means. Nitrous oxide is, however, dangerous, and cases of apoplexy are recorded from time to time during its use. The extraction of several teeth under a general anæsthetic does no harm to the patient; on the contrary, the blood letting entailed by it will be of benefit.

Diathermy in Treatment of High Pressure.

I now come to the real genesis of this communication—namely, the use of diathermy in treatment of high pressure. In my opinion this gives better general results than drugs do. I read in various contributions to medical literature of its value, and you will probably have seen an account of a discussion on the subject at the recent annual meeting of the British Medical Association, in which various observers—Cumberbatch, Humphris, Turrell—relate their own successful experiences. I have now tried it for over a year in a dozen cases, and in all there has been improvement with more or less permanent relief of symptoms and lowering of pressure. Dr. Cowan, who has treated the cases for me, will speak on its value and mode of application. All the patients, with or without obvious organic disease of the kidneys or cardiovascular system, felt better, and some of the latter continued with it at their own request after I wished to discontinue its use, as the pressure was not materially reduced. Diathermy has given encouraging results in some of my cases of angina pectoris, associated with high blood pressure and over-strain of the heart muscle. Nagelschmidt has watched diathermy treatment over some years and recommends it for angina pectoris. I give some iodine preparation night and morning in most of the cases, and digitalis when necessary.

I can give you no more satisfying evidence on the value of diathermy than the experience of a doctor patient of mine, who wrote thus to me as recently as Sept. 20th: "You will remember you took my blood pressure 18 months ago and found it 190. I have been having diathermy for nine months and the pressure has come down to 150. I have the treatment at two months' intervals and it keeps the pressure down."

Medical Societies.

MANCHESTER MEDICAL SOCIETY.

A MEETING of this Society was held on Oct. 3rd, when Dr. E. M. BROCKBANK, the President, read an address on

High Blood Pressure.

He said that it had been the custom of the Society for the President to occupy the whole of one meeting with an address, but he felt he could make the consideration of this large and difficult subject more attractive if other members were to coöperate with him in addressing the meeting. He proposed himself to deal with the clinical aspects of persisting high blood pressure, Prof. Shaw Dunn would discuss the pathological side of the question, Dr. Donald Core would speak on its nervous manifestations, Dr. John Cowan on its electrical treatment, and Dr. McSwiney would describe the investigations which are being carried out in the electrocardiograph department of the Royal Infirmary on the effect of age and disease on the rate of the pulse wave. Dr. Brockbank's remarks will be found in another column of this issue of THE LANCET.

Discussion.

Prof. J. SHAW DUNN, in discussing the morbid anatomy of cases of high blood pressure, stated that it was only in a minority of cases that the kidneys showed a chronic nephritis. In the majority the kidneys, though they might be diminished in size, revealed no certain evidence of old inflammatory changes on histological examination. In these non-nephritic cases death might be due to some intercurrent disease, but if it was dependent on the hypertonus it usually occurred either from cerebral hæmorrhage or from failure of compensation of an overloaded heart. Generally speaking, in cases of hypertonus dying from cerebral hæmorrhage there was more predominant degenerative disease of arteries, more atrophic kidneys, and the left ventricle showed pure hypertrophy. Where death in hypertonus occurred from cardiac failure the arteries, though thickened, showed less degenerative disease, the kidneys were of normal size or larger than normal, and the heart was very greatly enlarged, showing hypertrophy and dilatation of both ventricles. Referring to the transient nervous seizures described by Dr. Brockbank, Prof. Dunn mentioned that it was not uncommon in cases of high pressure to find small areas of softening, especially in the basal nuclei in the brain; these were probably the result of spasm or narrowing of arterioles, and might account for the seizures in question.

Dr. DONALD CORE said: I shall only have time to touch upon certain points of neurological interest in high blood pressure. The organic change most constantly associated with a high blood pressure is the cerebral anæmia of cerebral atheroma, and in such cases the readings may be very high. The type of patient is known to all: they are, usually, vivid, eager, energetic old people, discursive and young-looking for their age, and when the condition becomes of clinical importance they complain of pain somewhere about the body, impairment of concentration power and emotional control, with defective sleep, and a tendency towards depression. Arteriospasm is liable to occur in such people, and for the most part the blood pressure in such cases is high. At the same time this does not necessarily obtain, and I have records of at least eight cases in which the systolic blood pressures vary between 120 mm. and 168 mm. The value of one solitary record of the systolic blood pressure is open to criticism, unless the reading is excessively high or excessively low. Some years ago the importance of the correlation of the pulse-rate with the blood pressure reading was emphasised, and I am convinced that the greatest value from blood pressure readings is obtained when the daily variation in a systolic pressure is charted and compared with a chart of the daily pulse-rate. A systolic blood pressure of 160 mm. with a pulse of 120 need not necessarily have the same implication as a blood-pressure reading of 160 mm. with a pulse of 60. In cases of both cerebral hæmorrhage and cerebral thrombosis the blood pressure is liable to be high, but in the former case the pulse-rate is, as a rule, slow, whereas in the latter it tends to be quick.

Functional Disabilities.—The problem of an abnormal blood pressure is of especial interest in certain so-called functional disabilities of the nervous system. It is obvious, of course, that a raised blood pressure may be conservative, or a protective measure on the part of the body in response to certain organic diseases especially affecting the kidneys. Equally certainly, ductless gland deficiencies may be responsible for abnormally low readings. In organically healthy people the height of the blood pressure would appear to vary directly with the degree of emotional control that the particular individual has brought to bear upon his normally experienced emotional tones, or, in other words, we may look upon normal blood pressure, whatever that may be, as representing, in the absence of disease, normal emotional control for the man who is normal for his community; and in the absence of organic disease, variations above and below this would appear to go with exercise and disuse of this control respectively. In old people, people who are anxious, and people exposed to dread, the blood pressure, other things being equal, tends to be high. In young people, in obtrusively hysterical patients, and in a large group of epileptics, the blood pressure does not tend to be high, unless some complication be present. Many years ago, Sir Maurice Craig quoted observations of interest in this connexion, showing that the blood pressure is raised in cases of melancholia, and is not raised in cases of mania, but that in melancholia with agitation it tends to be rather on the low than the high side of the normal. This amounts to saying that restrained, carefully-guarded behaviour is, in the long run, associated with a raised blood pressure, whereas, the reverse obtains in uncontrolled freedom of behaviour. In this respect it is obvious that the blood pressure in healthy people presents certain interesting analogies to the psycho-galvanic response. A further point arises from the consideration of the above statements, and that is this, that the duration of symptoms in organic disease is liable to be associated with a raised blood pressure in proportion to the dread and anxiety associated with the course of the case, and in excess of what might be considered normal from the standpoint of the pathological state. Abnormally high blood-pressure readings in the absence of organic disease are associated essentially with pain, for the most part of vascular origin, impairment of the power of concentration, depression and disordered sleep, whereas, abnormally low blood pressure, possibly associated with a ductless gland deficiency, is liable to be accompanied by morbid sensations other than pain (particularly "altered consistency" sensations in different regions of the body) with very considerable impairment of emotional control. The President has already referred to certain methods of treatment of raised blood pressure, and I understand that Dr. Cowan will also deal with this point. I may say, however, that the drastic reduction of high blood pressure is in many cases likely to be associated with more discomfort than would be the case had it been left alone, and unless the reading is excessively high, in many cases it would be better to take measures to prevent the blood pressure becoming higher than to bring it down to any extent.

Dr. John Cowan spoke on the

Diathermic Treatment of High Blood Pressure.

He said: There are two ways in which diathermic currents can be applied: (1) hand-to-hand and foot-to-foot method; (2) condenser couch. I have chiefly used the former method. In this method the current is passed through the upper part of the body from one hand to the other; afterwards it is passed through the lower part of the body from foot to foot. I give 20 minutes for each half of the body. During the treatment the patient feels only a sensation of warmth. I have found no difference in the results whether the patient sits up or lies down. Usually I treat weakly patients and those with known heart affections lying down; the others I treat sitting up in a chair. Altogether I have treated 38 cases, and in every case a fall in blood pressure has been obtained. In cases with arterio-sclerosis or albumin in the urine the pressure has quickly risen again. These cases require treatments about once a week to keep the pressure down. High blood-pressure cases without either of these two conditions do very well, and the pressure remains down; in one of my patients it has remained down after 12 months. In one of these cases only was the result not maintained. The amount of reduction obtained at each sitting has varied from 5 mm. to 70 mm. All cases have what I call the "irreducible minimum" below which the pressure will not remain. If the pressure is carried below this point it quickly rises until this point is reached. In my cases this point has varied between 120 mm. and 180 mm. The number of treatments required to reach the "irreducible minimum" has been from three to ten; they are given at three or four day intervals. My conclusions are that: (1) Age and sex appear to play no part except that in old people more treatments are required. (2) No diminution in the secretion of urine has been observed in any case. (3) Symptoms improve—viz., headaches, breathlessness, insomnia, fleeting pains, anginal pains, vertigo; some angina pectoris cases have improved very well. (4) Bruit de galop in one case disappeared after the first treatment. (5) The pulse appears to alter in character; from being a sharp impulse sometimes approaching the water-hammer type it becomes more in the nature of a heave and apparently more prolonged.

Dr. B. A. McSwiney spoke on the velocity of the pulse-wave in relation to age and to elasticity of the arterial wall. He showed how the pulse-wave is recorded by the Hill[1] hot-wire sphygmograph. The carotid and radial pulses are recorded simultaneously and the velocity of the pulse-wave calculated from the findings. The relation of pulse velocity to age was pointed out. If the formula of Bramwell and Hill[2] $\frac{12\cdot7}{(\text{velocity of pulse-wave})\ 2}$ is used, 12·7 being a constant, the elasticity of the arterial wall can be calculated. Between the age of 10 and 60 the elasticity of the arterial wall is halved, which accounts for the increase in pulse pressure and systolic blood pressure with age (Bramwell, Hill, and McSwiney).[3] The relation of the velocity of the pulse-wave and of the elasticity of the artery to varying diastolic pressures is studied by applying a sphygmomanometer bandage to the arm and applying pressure as shown by Bramwell, McDowall, and McSwiney.[4] If P is the pressure inside the artery and p the applied pressure then P–p is the effective pressure. The carotid and radial pulses are recorded simultaneously at different effective pressures, and the velocity of the pulse-wave under the bandage calculated from the results. If the formula mentioned above is applied a curve of the elasticity of the arterial wall can be plotted. This method enabled one to compare the condition of the artery in the same individual at different times, or to compare the result obtained from one individual to the average result.

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[1] A. V. Hill: Jour. of Physiol., liv., Proc. Physiol. Soc., p. 52.

[2] Bramwell and Hill: Proc. Roy. Soc., 1922, xciii., B, 298.

[3] Bramwell, Hill, and McSwiney: Heart, 1923, x., No. 3, p. 233.

[4] Bramwell, McDowall, and McSwiney: Proc. Roy. Soc., 1923, xciv., B, 450.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

A MEETING of this section was held on Oct. 9th, Sir **WILLIAM HALE-WHITE** in the chair. Prof. **A. J. CLARK** was elected President of the section for the present year.

Prof. **HUGH MACLEAN** opened a discussion on the

Use of Insulin in General Practice.

The paper appeared in full in last week's issue of THE LANCET.

Dr. **GEORGE GRAHAM** said that there was no doubt of the great value of insulin in the treatment of diabetes. It must, however, be remembered that insulin was not a substitute for dietetic treatment. He had heard of a doctor who complained of the lack of result of treatment with insulin, whilst his patient was continuing to eat his usual quantities of bread and potatoes. He agreed with Prof. MacLean that insulin treatment was for the wise, and not for the foolish, doctor and patient alike. Coming to the question as to the best way of using insulin, F. G. Banting and F. N. Allen and their colleagues believed that it should be employed to render the blood-sugar normal in the fasting state. Certain observers in the United States thought the clinical condition more important. When insulin was used principally for the improvement of that condition the patients certainly felt better, but their blood-sugar often remained nearly as high as it was before treatment. From the point of view of the islands of Langerhans they were no better. Jocelyn took up an intermediate position, holding that the urine should be sugar-free, but that the blood-sugar might be allowed to remain slightly raised. He himself thought that the patient should be so treated that the blood-sugar became normal. (The speaker then showed illustrative blood-sugar charts.) He had treated some 40 patients in all; of 23 serious cases 19 left hospital with normal blood-sugar. Unless one waited a long time some people probably could not attain to the normal. Of the four patients who left hospital with their blood-sugar still raised, one died and the other three were much improved. Of the total of 40, 2 died, 1 of pneumonia, this patient's blood-sugar having reached normal, and the other of undiagnosed tuberculosis of the lungs.

Necessity for Short Treatment and Large Dosage.

Since beginning treatment with insulin he had altered his method, although the aim remained unaltered. With many patients, as had already been said, the blood-sugar would come down if one waited long enough, but a rush of cases necessitated a shorter time for treatment of each individual case; he therefore increased the dosage, until one woman received daily 60 units in the morning and 20 units in the evening. For such large doses patients should be n a hospital or nursing home. Except in such an nstitution they should not receive big doses until they were able to recognise the symptoms of overdosage. When patients showed these symptoms the dosage was reduced, the night dose—which, personally, he preferred to make the smaller one—being reduced first. It was not difficult to bring the blood-sugar down to normal, but it was more difficult to know what to do when it had been brought down. He delayed giving carbohydrates until this had happened, withholding bread as long as possible in order to give the islands of Langerhans a chance of attaining some degree of recovery. With regard to the later reduction of dosage, one of his patients was now receiving 40 units ess, and another 35 units less, than when they left hospital, and both were much better. With patients n a state of coma four or five hours, and with severe ases of diabetes five or six weeks, gave the answer as o whether insulin treatment was of use, but mild ases would necessitate waiting for years before results. He was now under-working the islands of Langerhans by withholding carbohydrates in these early cases. With reference to Prof. MacLean's statement as to the giving of a dose of sugar in cases of renal glycosuria, the majority of such cases that he had seen always passed sugar.

Prof. **J. J. R. MACLEOD** expressed himself as unable to talk of the clinical aspect of insulin. He had been much interested in the words of the two previous speakers with regard to the use of small quantities. Although it might not be possible with very small quantities to produce much change in the disease, the patient often felt very much better as a result of their administration. Experiments had been done to measure the "glucose equivalent" of insulin—i.e., the amount of glucose that each unit of insulin could cause to be metabolised. Some of his colleagues had tried to determine the glucose equivalent in certain "pedigree patients"—patients with definite diabetic history carefully controlled and dependable for observations of this type. The glucose equivalent did not remain constant at different times in the same patient. Whatever might be the reason of this variability it was obviously important. The clinician dealt with patients not entirely depancreatised, whose island tissue was not completely degenerated; this tissue would sometimes react with endogenous production of insulin and sometimes would not react. Work had therefore been carried out with depancreatised dogs incapable of producing endogenous insulin.

Experiments with Depancreatised Dogs.

It was found that when a dog was secreting quantities of sugar, insulin had a greater effect than when the secretion was smaller. The results on different days were more constant than those obtained with human patients, and results obtained with different animals were very close. In one series of experiments the amount of glucose, and in another series the amount of insulin, given per diem was constant. The results showed that there was some relationship between the amount of glucose which could be metabolised and the ratio between insulin and available glucose. It would be of value to have a patient treated with as small a quantity of insulin as would increase his ability to metabolise carbohydrates and make just the difference necessary to bring him into a healthy state. In many diabetics the subjective symptoms were more distressing than the objective symptoms; insulin seemed to improve these cases. Coming to the question as to whether it was worth while trying to obtain insulin which might be taken by the gastro-intestinal tract or by inunction, Campbell and others had tried this with encouraging results. He believed that insulin might be useful for the treatment of milder forms of diabetes. It had been found that in diabetics the average glucose equivalent was something under 2; in dogs the lowest value was over 3, but he believed there was no essential difference. A diabetic patient was deriving about 6 per cent. of his carbohydrates from proteins; this form of carbohydrate was not the same as carbohydrate introduced as such. The dogs derived their carbohydrates from sucrose, which might explain the difference in the glucose equivalents. As regards the ultimate effect of pancreatectomy, it had been found possible to keep a dog alive for four months, but no longer; the reason for this was not known.

Skin Irritation: Level of Blood-Sugar.

A good deal has been said in Canada, in the United States, and over here about skin irritation as a result of insulin treatment. Insulin preparations always contained some protein; the pancreas of both ox and pig was used, and it was found that a patient who experienced irritation from insulin made from the one might have none with insulin made from the other. Two or three such cases had occurred in Toronto. This skin irritation might discourage a patient, and it was worth while to change the type of insulin used. He would not give a definite answer as to whether a patient should be given enough insulin to keep the blood-sugar normal, or should be allowed to carry a certain load of glycosuria; but he thought it safer to keep the blood-sugar at the normal level. Enough information was not yet available to enable it to be said that an excess of blood-sugar was a physiological condition.

Toronto Scheme for Training of General Practitioner.

As to whether the general practitioner should feel qualified to undertake the serious treatment of diabetes with insulin, in Toronto it was decided that it would not be advisable to encourage this undertaking until the practitioner had had a short period of instruction in the use of the remedy. Through the Ontario Medical Association an arrangement had been made whereby each week 40 general practitioners spent two days in Prof. Graham's clinic in the Toronto General Hospital where lectures were delivered and clinical opportunities afforded, so that they might see exactly what the results of insulin treatment were. Hence no serious accidents in America had arisen from the use of insulin by the general practitioner. The Ontario Government had now provided, through the agency of the Provincial Health Board, that all these physicians should have insulin for the treatment of patients unable to afford it otherwise. This public health expenditure had been considered legitimate, and thereby insulin would have a fair trial. It would certainly be risky for a medical practitioner without easy access to those familiar with diabetes and insulin to undertake the treatment without occasional observations of the blood-sugar. Personally, he would not care to be responsible for treatment with this very powerful hormone without the chance of seeing what was happening by means of examination of the blood-sugar. Every patient in Toronto was deliberately given a big dose of insulin to acquaint him with the symptoms of hypoglycæmia. It had been noted that in a case with marked diuresis insulin had removed the diabetes but not the diuresis: this point deserved attention. As regards the use of adrenalin, it was well to remember that the latter might not act in removing the symptoms of hypoglycæmia unless there was a store of glycogen in the liver; such a store would certainly be found in a healthy individual, or in a diabetic patient treated for some time with insulin, but might not be found in a case of acute diabetes. This point should be watched, and an intravenous injection of glucose given in the acute case that came into hospital in a state of coma.

The Importance of Blood-Sugar Estimation.

Dr. E. P. Poulton re-stated the problem of insulin treatment in general practice as follows: Did they aim to keep the blood-sugar normal, or did it matter if the patient was passing a trace of sugar? He thought it better, if possible, to get the blood-sugar within normal limits. Could this be done in general practice without doing blood-sugars? He thought so, if they would be content to go slowly. After sugar had disappeared from the urine there was still a large margin before the approach of symptoms. The latter might, however, appear before the blood-sugar was sufficiently low, but the body would become used to the treatment, and the blood-sugar would gradually fall. He had experimented fairly satisfactorily, without doing blood-sugars, but the doctor must be experienced who attempted to do so. Concerning diet, he considered it better not to give starch; he gave 5 per cent. of vegetables—30 or 40 g. per diem. The patient felt happy with this amount of vegetable food, even without bread. Prof. MacLean had stated that the only unsuitable cases for insulin treatment were cases of renal glycosuria; these, however, were not cases of diabetes mellitus at all. He was inclined to agree. It was remarkable how elderly people improved and kept sugar-free. The problem of separating off the cases of renal glycosuria from those of diabetes mellitus must, however, come down to the blood-sugar curve. In the treatment of coma, he usually gave 40 units, perhaps at intervals of four to six hours, and every specimen of urine was tested. Queer results were sometimes obtained; patients came round to some extent and then died. He suggested that coma was a mixed uræmic and diabetic condition.

Reply.

Prof. MacLean, replying, said that there was some slight misapprehension of his attitude. He had at one time said that it would be better if the general practitioner in using insulin were to keep some sugar in the urine; he did not wish at that time to say anything rash, but treatment had now passed beyond that stage. What was the normal blood-sugar? It varied up and down after each meal, between 0·09 and 0·13 or 0·14. There must be some reason for that variation. He had simply wished to ensure safety. He felt that there was virtual agreement between all the speakers that the urine should now be freed from sugar, and that the blood-sugar should be brought within its normal variations. If the general practitioner took trouble he could safely treat cases without doing blood-sugars.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

The annual meeting of this association was held on Oct. 9th at the Elizabeth Garrett Anderson Hospital, when Dr. Louisa Martindale, the retiring President, called attention to the satisfactory annual report, read by Dr. Kate Platt, the hon. secretary, and then vacated the chair to her successor, Miss Chadburn, M.D.

Before proceeding to give her address, Dr. Chadburn, the new President, discussed briefly some of the points raised by Sir Humphry Rolleston in his recent address at the London School of Medicine for Women. Sir Humphry Rolleston had suggested that women work too hard and play too little. Dr. Chadburn believed that as students, women played well and worked well; but that as young medical women starting their permanent work in life, they did not work hard enough—not as hard as the young man in the same position. Medical men did not always help women to achieve and maintain a high standard of work; they were, she thought, too apt to praise work done by women which they would have torn to shreds if it had come from a man. Men and women were specialists of a sort by virtue of their sex alone, and where this sort of specialist was needed neither could take the place of the other. On occasion there was required that complete confidence and understanding which could only come from a member of the same sex. Dr. Chadburn expressed her conviction that the supply of medical women never would equal the demand—the supply was bound to be limited, the demand was rapidly increasing. That more women applied for resident posts than could get them was no proof that all these women are not needed in practice. As to the question of genius in women, even were it rare, this would not alter the value of the average merely talented worker who was perhaps more necessary in the world of work than those with genius. Another point raised had been that of marriage. It was true that marriage accounted for serious depletion of the ranks of medical women, and, moreover, quite apart from the gaps in work due to actual child-bearing, marriage and a family could not but take energy and time and interest *from* work which the unmarried woman could give *to* work. On the other hand, married women's work had a value all its own, and no one but the woman herself should decide whether she should continue work or not. Some women patients, some men needing advice about their wives, would choose a married woman, as they might under other circumstances choose a married man. As to the effect of menstruation on professional efficiency, Dr. Chadburn pointed out that medical men see only the pathological side of menstruation, since the normal does not present itself to them. Dysmenorrhœa and menorrhagia were not normal. She maintained that a large proportion of women, perhaps over 90 per cent., have no discomfort of any sort at the period; of the rest, only a very small proportion suffer to any (even mildly) incapacitating degree—these cases are pathological. People were too apt to talk as if every woman had dysmenorrhœa. The leaflet drawn up as a result of a discussion at the Medical Officers of Schools Association by Dr. Alice Clow, and distributed amongst mistresses and parents, gave sound advice, emphasising the fact that the monthly period is not a malady but a natural function; that exercise should be continued throughout the period, and that discomfort amounting to pain was a pathological condition for which a doctor should be consulted. The President admitted that there existed a relatively small number of women with more and less incapacitating dysmenorrhœa: these women, if incurable, were unsuitable for a profession which makes severe demand for exacting service at all and any hours, day or night. This was a disability almost as serious as being minus one arm or one leg, or being subjects of heart disease or epilepsy. Men and women with serious disabilities must take them into consideration in choosing their work in life.

The President proceeded to give an address wherein she surveyed the diseases of the large bowel from cæcum to anus, which had fallen to her care during the years 1905–1922, excluding pressure effects on the bowel from outside; also cases of adhesions and their sequelæ, diseases of the appendix, hæmorrhoids, fissure, fistula, and complete perineal tears. In spite of strenuous efforts it had been found difficult to trace cases, but it was encouraging to find a few cases of carcinoma of rectum, sigmoid, colon, and cæcum living as long as eight to 14 years after radical excision. Special points were: The incidence of disease in the large bowel, the great preponderance of malignant disease, of the malignant cases the large proportion of cases inoperable when first seen and the advanced stage of those that were operable, and the rarity of the discovery of malignant disease of the large bowel at an early stage. The incidence of disease in 181 hospital cases taken consecutively: Cæcum, 12 (carcinoma 7, tubercle 3, intussusception 2); colon, 13 (carcinoma 12, tubercle 1); sigmoid, 32 (carcinoma 22, colitis 6, ulcerative colitis 1, perforation of chronic ulcer 3); rectum, 121 (carcinoma 80, fibrous stricture 16; of these 16 syphilis accounted for 10, cellulitis for 3, tubercle for 3); constriction with no ulceration 4 (cancer of cervix 1, old cellulitis 2, imperforate anus 1); radium ulcer following prophylactic radium treatment 1, shallow ulcers (?) cause 2, proctitis 2, villous tumour 4, prolapse 5, fæcal impaction 4, spasm of rectum causing obstruction with fæcal vomiting 1. Of the 181 cases 121 were carcinomata, of which 62 were operable when first seen. The President did not believe that any more radical operation than the modern abdomino-perineal excision for rectal cases would be possible; she considered that operations on the large bowel can be as radical as is physically possible. Advance must be sought either in obtaining cases earlier for treatment, in some treatment other than operative, or in prevention. Early diagnosis seemed the most hopeful means of improving results, but unfortunately the onset was insidious. Exploratory abdominal section for diagnostic purposes had not yielded much success in the President's hands.

Results of Operation.—Dr. Chadburn's operation results for carcinoma as far as available were as follows (the cause of death, unless stated, is unknown):—

Cæcum (7 cases): 5 operable, all 5 quite well, seen recently, the operations being 20 months, two years, six years, nine years, and ten years ago.

Ascending colon (2): 1 died on fourth day after operation; 1 well after two years; at a recent hysterectomy on this patient no sign of recurrence inside the abdomen was seen.

Transverse colon (1): died two years later.

Splenic flexure (1): died one year later from recurrence, kidney and lung.

Sigmoid (8): 3 well (three years, eight years, and a few months after operation); 3 dead (two to four years after); 1 no report; 1 died sixth day after operation.

Rectum: 45 operable cases.

Abdomino-perineal excision (31): 7 died from operation, 24 recovered (13 without colostomy, 11 with colostomy). Of the 24 cases which recovered abdomino-perineal excision 8 sent no report; 4 are reported to have died in three months to three years; 1 died 3½ years after operation from acute septicæmia, no signs being found of recurrence of carcinoma; 11 have been seen, 1 has recurrence in the vagina, 10 have no signs of recurrence, 1 case after nine years, 2 cases after eight years, 4 cases after four to five years, 3 cases after two to three years.

Recto-colostomy (2): both recovered, well five and eight years after operation.

Perineal excision (11): 2 died from operation; 9 recovered, 1 well 14 years after operation, 8 no report.

Local excision (polyp found on section to be malignant): 1 died from bronchitis.

The President concluded that the operations for carcinoma in the large bowel are borne well, especially in early cases, those cases that died from operation in her series were almost without exception very advanced cases, a large proportion of them had more than the affected bowel removed—e.g., in three cases she had to remove the uterus and part of the vagina, in one the left ovary and tube and an adherent portion of small intestine in order to remove a rectal growth; in another case she had to remove the left kidney and ureter because of the involvement of the ureter in a growth of the sigmoid colon. As regards technique, she performed lateral anastomosis of bowel, or an end-to-side anastomosis as being safer, easier, and less likely to contract than an end-to-end anastomosis. For rectal carcinoma an abdomino-perineal excision, if possible, was the operation of election, with or without colostomy. Where the vessels of the sigmoid loop and the position of the growth allowed, she brought the sigmoid to the anus, leaving the sphincter after incising it, to secure drainage of the bowel. These patients had a very fair and in some cases a very good control. A perineal excision, though not the operation of election, could be a very free one if approached by the vaginal route. Dr. Chadburn did not think there was ever any advantage in taking away a portion of the sacrum—as good a clearance of glands could be obtained without, but not nearly as good a clearance as by the abdomino-perineal route, where the inferior mesenteric artery and the glands on it were removed at the highest possible point. She concluded her address by giving details of certain unusual cases.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The first meeting of the sixty-eighth session was held in the board room of the Miller General Hospital, Greenwich, on Oct. 12th. The President, Dr. W. H. Payne, occupied the chair. Dr. E. P. Cumberbatch, Mr. Willmott Evans, Mr. C. A. Joll, Dr. H. Pritchard, and Dr. H. Nockolds showed clinical cases. On Nov. 9th Dr. Hildred Carlill will discuss Tabes Dorsalis, and on Dec. 14th Sir Thomas Horder will speak on Carcinomatosis. A clinical evening will be held on Jan. 11th. On Feb. 8th Mr. Kenneth M. Walker will speak on Experimental Work on the Internal Secretion of the Testis, and Rejuvenation Operations. On March 14th Mr. Montague L. Hine will read a paper on the Interdependence of Ophthalmology and General Medicine, and on April 11th Mr. Percival P. Cole will deal with the Surgery of the Face and Jaws.

CANCER CONGRESS IN BRUSSELS.—The *Ligue Nationale Belge* against cancer, which has recently been created, has decided to hold a congress on this subject on Nov. 18th, 19th, and 20th in Brussels. The committee engaged in the organisation of this congress hope to gain the collaboration of all branches of medical science in the social aspect of the campaign against cancer, and an attempt will be made to interest practitioners in recent therapeutic advances, as well as in the scientific study of the genesis of this disease. The representatives of allied and friendly countries will be welcomed at this congress, the first two days of which will be devoted to a discussion of biological and therapeutic problems related to malignant disease. At the end of the congress there will be a demonstration of the radio-therapeutic establishments in Brussels. All inquiries and communications should be addressed to La Ligue Nationale Belge, 80, rue de Livourne, Bruxelles.

Reviews and Notices of Books.

SERIES OF SURGICAL MONOGRAPHS.

Reconstructive Surgery of the Upper Extremity. By ARTHUR STEINDLER, M.D., F.A.C.S., Professor of Orthopædic Surgery, Iowa State University Medical School. London and New York: D. Appleton and Co. 1923. With 50 plates. Pp. 310+xix. (Series of Surgical Monographs, £6 5*s.* the set.)

Dr. Steindler's book on the "Reconstructive Surgery of the Upper Extremity" forms a part of the series of surgical monographs which are appearing under the editorial supervision of Prof. Dean Lewis, Dr. Eugene Pool, and Prof. Elting. In his preface the author tells us that the book is written as a record of personal experience rather than as a text-book, and that therefore it does not pretend to deal exhaustively with the subject as defined in the title. It appears, therefore, as if another work might be required to fill up the gaps, and that a whole library would be required for adequate discussion of the reconstructive surgery of the human body. However, the very fact of its limitation to personal experience makes this monograph of special value. As Dr. Osgood says in his introduction, "This is the type of book we need . . . the conclusions of a thoughtful man who believes his experience in a limited field has taught him certain things which it is his duty to pass on to his colaborers (sic) in the art of healing." It is characteristic that on the vexed question of birth palsy the author passes no judgment on the different theories of causation, but contents himself with the practical results of treatment. To show the scope of this work it will be enough to give a list of the chapter headings: Subacromial bursitis, congenital deformities of shoulder, paralysis of shoulder and elbow, the paralytic hand contractions of wrist and fingers, spastic paralysis, tuberculosis, chronic arthritis, congenital malformations and deformities, traumatic deformities, and the physiotherapy of the upper extremity. A perusal of this list will show how much is lacking to a complete presentment of diseases of this region, but as far as it goes it is up to date and the author's personal experience is frankly and clearly stated and statistics given in full.

The book is fully illustrated with photographs and diagrams, and handsomely printed and got up. Despite the numerous plates there are hardly any pictures of apparatus, which are of such importance in the treatment of deformities. Especially noticeable is the absence of illustrations of the technique of plaster-of-Paris appliances.

Gastro-Enteroptosis. By ROBERT C. COFFEY, M.D., F.A.C.S., Surgeon-in-Chief, Portland Surgical Hospital. Same publishers and series. 1923. Pp. 303.

ONE of the most difficult problems for the clinician is the appreciation of the legitimate place surgery should assume in the treatment of gastro-enteroptosis. Most unfortunately, surgery of this condition has been hindered by over-enthusiastic workers. The selection of suitable cases is probably more important in treating this disease than almost any other, and rules have not yet been satisfactorily worked out by which we can choose cases which will benefit by surgery. Dr. Coffey in this very valuable monograph puts forward what is known of the several aspects of this question. He has reviewed the literature very completely and presents the subject in a conservative manner. He writes in the preface: "I concede that in bringing forward this subject of ptosis and stasis, we are opening one of the most dangerous fields for surgical powers that has ever been open to the surgical 'confidence man' who needs no other excuse for performing a surgical operation, than the consent of the patient." He issues a warning, too, about X ray observations. These are of "inestimable value in the study of these cases, but are the most dangerous agent yet placed at the disposal of the unscrupulous surgeon, because they are so evident to the laity and at the same time so meaningless when considered independently in the history of the case, and not properly interpreted."

It will be seen from these different statements that the author is very cautious in his recommendations. He views the subject more from the anatomical than the physiological side. He shows how the weight of the upper abdominal organs is supported very largely by the psoas shelf; how in certain individuals this shelf is inadequate as a supporting structure, owing to the formation of the spine; how enteroptosis depends to a very large extent on whether the normal peritoneal fusions have taken place during embryonic life. He divides visceroptosis into general abdominal ptosis, right-sided ptosis, and mid-line ptosis, and whatever may be the origin of the dropping of the viscera, he is convinced that once displaced, the abdominal bands, which are regarded as the defence of the organism against further falling of the viscera, give rise to many abdominal symptoms. He concludes, and he is supported by clinical experience, that the simple division of such bands can only give very temporary relief, the bands re-forming as strongly as ever. His treatment is based on the proper fixation of the dropped viscera and division of the bands, which do not re-form when the viscera remain in their normal positions. The details of treatment are very clear and the citation of cases is rather convincing. Whether underlying physiological causes have been thrust too much into the background is open to debate. The author's views have not crystallised sufficiently for him to give rules based on radiographic appearances, as to which cases should receive surgical and which medical treatment. This question must be settled by future investigators. His views may be summed up in one of his concluding sentences. "Being a mechanical and physical condition largely, mechanical and physical measures are essential to its proper treatment." As the result of experience, he says unhesitatingly that no part of his surgical work has been more satisfactory than that pertaining to the ptosis question.

Traumatic Shock. By WALTER B. CANNON, A.M., M.D., late Lieut.-Colonel, Medical Corps, U.S. Army, George Higginson Professor of Physiology, Medical School, Harvard University. Same publishers and series. 1923. Pp. 201.

A TREATISE on surgical shock from the pen of one of the best all-round physiologists in America, and one who has studied the subject in the field as well as in the laboratory, in association with British investigators, cannot fail to be of value and interest to English readers. After carefully stating exactly what he understands by the term "shock," the author proceeds to a physiological analysis of the condition, and, like other physiologists, is of the opinion that the condition is primarily due to concentration and stagnation of blood in the capillaries. Some of the consequences of this are then considered, and, after a full discussion of the various theories which have been advanced to explain the causation of shock, the book concludes with an account of the various forms of treatment which have been advocated. The book is sound and well written, and provides solid ground for further investigations into this important condition.

Surgery of the Spleen. By EUGENE H. POOL, M.D., Attending Surgeon, New York Hospital; Clinical Professor of Surgery, Columbia University; and RALPH G. STILLMAN, M.D., Clinical Pathologist, New York Hospital; Assistant Professor of Clinical Pathology, Cornell Medical School. Same publishers and series. 1923. Pp. 347.

THE surgery of the spleen is in reality a small subject and is yet in its infancy. This depends largely upon our lack of knowledge of the functions of the spleen in normal life. In this volume we find a very good epitome of what is known of splenic activity both in health and disease. A wide range of literature has been consulted and the views of different observers are put forward with well-balanced judgment. After a review of the anatomy, embryology, physiology, and pathology of the spleen, the clinical features associated with splenic disease are treated in separate chapters. The obscure diseases of the spleen are set forth as far as present knowledge allows, and surgical indications are given. The book ends with a chapter on operative procedures. The monograph will be useful as presenting present-day knowledge of diseases associated with the spleen.

The Transplantation of Tissues. By HAROLD NEUHOF, M.D., Instructor in Surgery, Columbia University, Associate Surgeon, Mount Sinai Hospital. Same publishers and series. 1923. Pp. 297.

THE knowledge relating to the transplantation of tissues is far from exact, although a great deal of work has been done and the literature is extensive. Too often unwarranted deductions have been made from experiments by enthusiastic workers, whilst there has frequently been an absence of controls. A service has therefore been performed by Dr. Neuhof in making a critical and comprehensive review of a subject to which he has personally devoted much study. After a consideration of general principles and of the factors necessary to success in the different forms of transplantation, the grafting of the different tissues is described, and the indications for such methods are set forth. Throughout the author insists that the evidence for survival of moderate-sized growths of any tissue is of the slightest. This is true of autoplastic grafts where the prospect of success is greatest. He believes that a study of blood compatibility may possibly render homo-transplantation a practical measure. He reports one success where tatooed skin was transplanted to a patient of the same blood group. He believes that skin grafting could be used more extensively with benefit to patients. Technique for different operations is described. The inlay method for curing ectropion and other defects is not considered, though it is the best available for certain purposes. The chapter on fascial grafts is informative and helpful to the plastic surgeon. The author is commendably cautious in extolling the virtues of such transplantation. Always he insists that an attached flap is better than the free flap which, is only to be employed when local plastic measures are impracticable. It is this caution manifest throughout the book which renders his recommendations for the use of transplantation methods so valuable. He shows how fascia lata can be used for the cure of ptosis, the improvement of facial paralysis, the repair of defects in dura mater or abdominal wall, and for other purposes. As a covering for bone ends in arthroplasty he does not believe free grafts to be suitable. The chapters on fat and bone grafting provide a mass of useful information. We gather that the use of fat as a free transplant could be extended. Cartilage is stated to resist disintegration longer than bone. It is regarded as the best material for the closure of skull defects and as a support in the fashioning of a new nose. There is a critical review of work that has been done on the transplantation of whole organs.

This is a book which any surgeon would be glad to possess for consultation when the problems of plastic surgery arise.

ANÆSTHETICS.

Practical Local Anæsthesia. By ROBERT EMMETT FARR, M.D., Minneapolis. London: Henry Kimpton. 1923. With 219 engravings and 16 plates. Pp. 529. 42*s*.

THE dedication of this book "to that important individual, the patient, who, fate has decreed, must undergo surgical treatment" gives a true line to one of its most noticeable characteristics, the constant sympathy of the author for the trials of the patient. This quality is especially important on the part of one who practises local anæsthesia. It has saved Dr. Farr, ardent partisan though he is of local methods, from ignoring their inevitable occasional inadequacy. When the respective advantages and disadvantages of local and general methods are contrasted, Dr. Farr never loses sight of the patient's feelings. His remarks, however, on general anæsthetics are the least valuable portion of his work. The book is divided into three parts, and the first part deals, in addition to general anæsthetics, with equipment and technique, a description of the sensory nervous system being added. The especial importance of technique and of correctly designed instruments, as a part of the essential devices for avoiding pain, are well enforced by the author. The lesson is instilled throughout that under local emergencies success is impossible unless the surgeon constantly exercises the utmost gentleness. Thus the patient is spared the amount of injury which is apt to be inflicted without noticeable harm at the moment by those who operate only during general anæsthesia.

The second part describes the use of local anæsthesia in all regions of the body except the abdomen. This is reserved for the third part. Many of those who use local anæsthetics for most purposes fight shy of them for operations on the upper abdomen. Dr. Farr is not one of these. He makes frequent use of splanchnic anæsthesia by the anterior route, having opened the abdomen under infiltration anæsthesia. The relative values of regional and infiltration methods are fully discussed and the reasons for generally preferring the latter are clearly demonstrated. The usual solution that the author prefers is novocaine between 0·07 and 1 per cent. with epinephrin. The latter ingredient he reduces to a very small proportion when operating for exophthalmic goitre. In all operations about the anus and in tonsillectomies he uses 1 to 600 solution of quinine and urea hydrochloride, after operating under novocaine, in order to prevent after-pain. An official term new to us appears in the book—the "psycho-anæsthetist." He, or more often apparently she, is capable of giving general anæsthetics when they become necessary and the decision on this rests largely with him or her. Apart from this, the psycho-anæsthetist supplies moral support to the patient, both before operation and at the time, and in various ways ensures that calmness of the mental atmosphere on which Dr. Farr so rightly lays stress in local anæsthesia. The author employs preliminary hypodermic injections in moderation only, and rightly distinguishes between the use of local anæsthetics on persons already stupefied with narcotics and their employment as the responsible anæsthetic agent.

The illustrations are very good, and the whole book, with its careful attention to detail, will prove of great assistance to any surgeon who proposes to become expert in the use of local anæsthetics.

The Art of Anæsthesia. Third edition. By P. J. FLAGG, M.D. London and Philadelphia: J. B. Lippincott. 1923. With 136 illustrations. Pp. 371. 18*s*.

THE third edition of Dr. Flagg's book has increased in size but not unduly. The author's work on discriminating degrees of cyanosis is perhaps the most interesting of the new matter. He rightly attaches the utmost importance to the colour of the blood as a clinical index of condition in the patient under anæsthetics. Hence to be able to gauge accurately slight differences in blood colour should be a potent means of safety in the anæsthetist's hands. The differences depend, of course, on differences in oxygen content. For using this symptom to estimate a patient's condition, Dr. Flagg has employed an instrument called the "hæmoxometer" or "oxyhæmoglobinometer," which affords, he says, a simple means of reading the oxygen content of the blood. Dr. Flagg expresses a pronounced preference for gas and oxygen and ether with preliminary hypodermics as the best all-round method thus far devised. He is impressed with the possibilities of danger and of failure with gas and oxygen alone and disapproves of the saturation method. A chapter is devoted to the duties of the nurse before, during, and after anæsthesia. In this country, at least, she has little part to play before and during anæsthesia so far as the anæsthetic is concerned, but her duties afterwards, as detailed by Dr. Flagg, might well be carried out by many nurses "on this side."

Elements of Pharmacy, Materia Medica, and Therapeutics.

Eleventh edition. By Sir William Whitla, M.P., M.D., D.Sc., Emeritus Professor of Materia Medica and Therapeutics, Queen's University, Belfast. London: Baillière, Tindall, and Cox. 1923. Pp. 672. 10*s*. 6*d*.

The new edition runs on the lines of the old; it is the best book of reference for ordinary drugs, official and non-official. As there has been no new British Pharmacopœia since the last edition, the official part is changed very little, but in the non-official remedies there are several additions and omissions. Drugs come and go, and Prof. Whitla gives them a fair chance. The appearance of a drug in this volume is a hall-mark with which the maker may well be content. While the new edition brings one up to date it is worth keeping the old edition to look up preparations which have had their day. Only a few points need comment: we are astonished there is not more reference to quinidine, which is still left as the uninteresting sister of quinine and is classed as one of the drugs that are less frequently employed than formerly. Acriflavine, yadil, eusol, and iodex now find a well-deserved place, and gamboge reappears after a period of exile. Hay fever vaccine now replaces serum. The list of vaccines and serums is a specially useful one, for the knowledge and doses of these is such that no one can carry them in his head. Reference in this book is always easy, for the index is excellent.

Sewerage.

The Designing, Constructing, and Maintaining of Sewerage Systems and Sewage Treatment Plans. Ninth edition. By A. Prescott Folwell, Past President of the American Society for Municipal Improvements. London: Chapman and Hall, Ltd. Pp. 477. 27*s*.

The established reputation of this work by an American expert obviates the necessity for elaborate review, as does also the fact that general principles as to sewerage systems and sewage disposal interest the medical profession rather than the scientific and practical details here given. The work is divided into two parts. The first part on sewerage systems comprises 13 chapters dealing with the amount of house sewage and of storm sewage, with flow in sewers, flushing and ventilation, collection of data, designing, specifications, construction, and maintenance. In the second part relating to sewage disposal, the first chapter deals with disposal by dilution; then follow chapters on the removal of suspended matters, oxidation methods, and other treatment methods.

The subject is clearly dealt with, and numerous figures make specially difficult points clear. In an appendix is given a list of the processes adopted in a large number of cities in America.

JOURNALS.

Journal of Pathology and Bacteriology. Vol. XXVI. No. 4. Pp. 433–556. October, 1923.—The Organisms of the Fowl Typhoid Group, by R. St. John-Brooks and Mabel Rhodes. A study of the various organisms which have been isolated in Europe and America from fowls and other birds with dysenteric symptoms and described under a variety of names. Some of these are shown to be synonymous, and the grouping of the species is clarified. The paper is a good example of the valuable taxonomic work which the existence of the National Collection of Type Cultures at the Lister Institute renders possible. —Vitamins and Bacterial Growth, by G. A. Wyon. There has been a good deal of loose talk about the influence of vitamins on the growth of bacteria; the author shows that vitamin B from yeast exerts no favourable action, and incidentally that amino-acids are not such important adjuvants as has been supposed.—Diphtheria Toxin Production on Douglas's Medium, by A. F. Watson and U. Wallace. Tryptic digests of meat, prepared under controlled conditions of time and temperature, make it possible to obtain high-grade diphtheria toxins with considerable certainty.—The Structure of the Thyroid Organ in Man, by G. Scott Williamson and I. H. Pearse.—The Healing of a Uterine Wound: Mitosis in Unstriped Muscle, by D. McIntyre. The occurrence of reparative cell-multiplication in human plain muscle is quite exceptional.—Primary Liver-cell Adenoma (Hepatoma), by A. F. B. Shaw. A detailed description of one of these interesting liver tumours in a boy of 13. —The Relation of Deprivation of Vitamin B to Body Temperature and Bacterial Infection, by G. M. Findlay. We comment on this paper in a leading article.—On the Composition of *B. welchii* Toxin, by H. Henry. The bacillus produces two toxins, with special actions on red blood corpuscles and muscle respectively. Their relative proportions are the same in different preparations, and hence the neutralising value of antitoxic sera can be ascertained by titrating the hæmolysin in vitro.—The Pathogenesis of Primary Pneumococcal Peritonitis, by J. E. McCartney. The disease is confined to female children, mostly of the poorer classes. Infection takes place through the vagina, and is encouraged by dirtiness leading to a vulvo-vaginitis from which virulent pneumococci may be isolated.—The Presence of Heterophile Antigen in Bacteria, with Special Reference to Shiga's Dysentery Bacillus, by T. Iijima. The organs of certain animals—e.g., guinea-pig but not man—injected into rabbits lead to the production of hæmolytic immune body for sheep corpuscles. Shiga's dysentery bacillus does the same, and some of the toxic effects of Shiga vaccines may be anaphylactic in character, since human serum sometimes contains considerable quantities of heterophile (Forssman) antibody. Cholera, typhoid, paratyphoid, and Gaertner bacilli do not contain the antigen.—Cutaneous Hypersensitiveness in Enteric Infections, with Special Reference to Carriers, by W. McKendrick. Intradermal injections of dilute emulsions of typhoid and paratyphoid bacilli are a valuable method of detecting the persistence of infection in typhoid convalescents and of finding carriers. A positive reaction is highly specific, a negative one of less value. —A Neuroblastoma of the Thoracic Cavity, by J. A. Anderson and T. Shennan.—Leucocytosis in Myeloid Leukæmia, by A. Piney. Hourly counts show a very large digestion leucocytosis, in which all varieties of cells participate about equally; the reaction fails towards the end of life.—A photograph of a group of 98 pathologists, with a key to their identification, forms an interesting record of the last meeting of the Society.

Indian Journal of Medical Research. Vol. II., No. 1, 1923.—This number contains 22 articles.—R. McCarrison contributes a long paper on the pathogenesis of deficiency disease.—J. A. Sinton describes Indian species of the genus phlebotomus.—J. A. Cruickshank and his collaborators write on the statistics of filariasis and the relationship between it and elephantiasis.—J. F. Caius and K. S. Mkaskar have investigated the relationship between the chemical composition of anthelmintics and their therapeutic values.—W. F. Harvey has three articles upon vaccines and laboratory technique; two of these are in collaboration with K. R. K. Iyengar.—H. E. Shortt describes the pathology of acute experimental kala-azar in monkeys; he also has a second short, but important, communication on the recovery of the Leishman-Donovan body from the urine in this disease.—P. J. Barraud writes at length on the revision of the culicine mosquitoes of India.—R. B. Lloyd, E. Muir, and G. C. Mitra have investigated the Wassermann reaction in leprosy, and appear to have settled this question.—E. Muir has studied the spread of leprosy throughout the body, while E. S. Phipson describes an outbreak of typhus in Simla, in which he found the Weil-Felix reaction of very distinct value.

THE LANCET.

LONDON: SATURDAY, OCTOBER 20, 1923.

MEDICAL BENEFIT UNDER THE NATIONAL INSURANCE ACT.

As we go to press, the Conference of representatives of the Local Medical and Panel Committees—to give the body its full name—is sitting in circumstances so familiar to all that they need not be recapitulated further than in the following sentences. The Government has decided to reduce the capitation fee, and the offer published in THE LANCET last week contains their terms in a succinct statement. The Insurance Acts Committee of the British Medical Association have replied categorically to the offer of the Government, pointing out that their answer embodies the advice which they are prepared to offer to the representatives of the two committees at the Conference. The gist of that advice was that the terms offered by the Minister, being inadequate, should be made the subject of arbitration. To the letter of the Insurance Acts Committee the Minister has replied refusing arbitration. This letter will be found on p. 898, together with the reply of the committee acknowledging the responsibility placed upon them, and pointing out that the medical profession cannot accept the position of being placed under the dominance or control of a particular section—namely, the approved societies. With the representatives at the Panel Conference—to use the abbreviated title of the body now in conclave—rests the decision as to what definite reply shall be made to the offer of the Government. From much comment in the public press, and from knowledge acquired here of the feelings of the medical profession, we gather that the machinery for regulating medical benefit under the National Insurance Acts is not widely understood, so that the delays preliminary to the arrival of definite decisions are viewed with impatience, while the appearance is given of subterfuge or hesitation by the constant employment of the phrase that the final responsibility does not rest with this or that body or lie in this or that direction. As the decisions of the representatives of the two committees, arrived at by the Conference, will be the subject of close and wide discussion, it may be useful to set out the structure and responsibilities of bodies concerned in the regulation of medical benefit.

The first thing that it is necessary to remember is that Parliament is supreme both in the interpretation of doubtful points under which any statutory bodies are constituted and in the allotment of the duties and responsibilities of those bodies. Section 8, paragraph 1, of the 1911 Act sets out succinctly the benefits conferred by the Act upon insured persons. They are medical treatment and attendance, including the provision of proper and sufficient medicines and such medical and surgical appliances as may be prescribed by the regulations of the Ministry of Health, now and here replacing the Insurance Commissioners. Other sub-headings of the section include mention of assistance in cases of disease and incapacity, of disablement, and as maternity benefit. Section 14 of the Act deals with the administration by the approved societies and, in the case of those who are not members of one of these bodies, by the Ministry of Health. The following Section (15) in the second sub-clause defines panel practice, setting out how the medical practitioners are expected to meet the situation of administering the medical benefits under the insurance committees, whose duty it is to make arrangements with the practitioners in accordance with the regulations of the Ministry of Health. These insurance committees, as defined in Section 59 of the 1911 Act, are statutory bodies, constituted for every county and county borough. Three-fifths of each committee consists of representatives of the approved societies, the remaining two-fifths being made up of the State, county, and the medical representatives. The Conference which is now proceeding arises in this way. Under the 1911 Act there were created the local medical committees, elected by the medical practitioners in the neighbourhood, whether accepting the responsibilities of the panel or no. The local panel committees, statutory bodies created by the 1913 Act, are chosen by the panel practitioners and the practical result has been that these two bodies proved largely identical. So it has been frequently found simpler for one body by common agreement to function as representing both, and it is these committees who are sending representatives to the Conference. As, however, there is no onus upon them in the Act to choose representatives or to hold a conference, their action is spontaneous. None the less these conferences have been held since 1913, and since 1915 their recommendations have been recognised by the Ministry of Health as coming from a central mouthpiece. After the Conference the representatives deliver their message through the Insurance Acts Committee of the British Medical Association. It is clear that they might choose an executive committee from among themselves and act through that executive committee, and it has been pointed out that in principle this is what should have been done. We do not think that this point has the importance which it assumes in some minds, seeing that the overwhelming majority of the Insurance Acts Committee have been directly elected by the local medical and panel committees. The Insurance Acts Committee will receive the message of the Conference and deliver it to the Ministry of Health, that Ministry having now definitely assumed all the functions of the original Commissioners; and the Minister of Health will decide upon the actual course to be taken obtaining, of course, Parliamentary sanction for his action.

The reply of the Insurance Acts Committee to the offer of the Minister of Health, though temperate and well-considered, has not escaped abuse from the approved society officials. One of these officials has gone so far as to say that the societies are not prepared to agree to such an offer, and further, that the Minister has no right or power to make it. The position taken up by the society officials is that which might have been expected after the expedient had been adopted at the end of 1921 in respect of the surplus funds of the societies. The medical benefit fund is an integral part of the general insurance funds and quite distinct from the sickness benefit funds which are disbursed by the societies. The danger of conceding the principle that the doctors are paid out of the funds of the societies is obvious, for already it is contended that if the doctors are to be paid adequately the weekly payments of the sick insured person must be curtailed. The question is wider than that of an additional shilling or so on the capitation fee, and we therefore regret the decision of the Minister of Health not to proceed to arbitration. We do not want a repetition of the "battle of the clubs."

VITAMINS, INFECTION AND BODY TEMPERATURE.

THE importance of vitamin deficiencies in promoting morbidity and mortality from infectious conditions has often been urged in recent years. Their real rôle in this respect can be determined only by the massive data of hygienic studies, for effects which are substantial enough in the returns of medical officers of health are often outside the practicable range of experimental investigation. It would, for example, be difficult to reproduce and analyse in the laboratory a reduction of infantile mortality from 100 to 80 per thousand births. But the belief that moderate vitamin defects are responsible for a definite increase of infections is much encouraged by the demonstration that, under the exaggerated conditions of experimental work, animals fed on grossly defective diets are found to be much more susceptible to infection by inoculation than are similar animals normally fed. In the last number of the *Journal of Pathology and Bacteriology* Dr. G. M. FINDLAY describes a series of experiments on pigeons deprived of vitamin B, and shows that after a deprivation of two or three weeks they readily succumb to inoculation with the pneumococcus and the meningococcus to which they are naturally completely resistant, and are much more than normally susceptible to doses of *B. coli* and Gaertner's bacillus. Getting an indication of an explanation of this difference from the work of STROUSE on the natural immunity of birds to the pneumococcus, he shows that the vitamin defect leads to a considerable lowering of body temperature, that the effect of any one inoculation can be predicted from the temperature of the bird at the time, and that artificial lowering of temperature with the drug pyramidon induces a similar susceptibility. The same facts have been described independently by C. H. WERKMAN.[1] Under the conditions of these experiments a marked fall of body temperature has a 100 per cent. effect; it is at least not unlikely that smaller deviations from the normal level of heat will have results important enough in the scale of human morbidity.

It is 45 years since PASTEUR, JOUBERT, and CHAMBERLAND found that cooling a chicken made it susceptible to anthrax infection, and enough importance has perhaps not been given since to that classical observation. Fever is now rightly regarded as an important part of the defence against infection; more attention should perhaps be given to subnormal temperatures as aiding infection and depressing resistance. A gay and buoyant temperament and the kind of life it leads to are well-recognised enemies of bacteria; a depressed and meagre existence is on their side. The form of the daily curve of body temperature depends largely on bodily activity; getting up and dressing brings it up to "normal" from the 97° F. or thereabouts which it is at the moment of waking, but its progress to the 100° or so which it reaches at midday is a question of vigour and muscular activity. The mean temperature of the melancholy, ill-fed or lethargic will, therefore, presumably be lower than that of the cheerful and lively. Violent muscular work raises temperature still further, hence perhaps some of the beneficial effects of exercise, but if it is pushed to exhaustion temperature soon falls to subnormal, and the ill-effect of tiredness on infections is notorious.

The mechanism of the relation between temperature and resistance is not quite obvious. With pneumococcus infections the fever is higher than the organism bears easily; it can be shown outside the body that the organism grows better at lower temperatures. But in many cases this does not apply. If the processes of attack by the bacteria and those of defence by the body had the same temperature coefficient, the relation of the two would not be altered by a change. It may be that the coefficients are different, or, which is more likely, that while the attack depends essentially on a single factor—the growth of the organisms—the defence uses a variety of methods, such as antibody production and phagocytosis, which are not directly dependent on one another, and whose combined effect varies with their product rather than their sum. If this be so, changes of temperature make much more difference to the body than to the organisms, which is the same as saying that the temperature coefficients are en masse different.

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[1] Journal of Infectious Diseases, vol. xxxii., p. 253.

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ECONOMICAL PRESCRIBING ABROAD AND AT HOME.

A STUDENT trained in hospitals where medicines are ordered and appear at request can have but little idea of the prices of remedies, especially as the prescriptions ordered in hospitals are mainly those of stock mixtures prepared with a view to economy. When he first starts in general practice, he is usually over-generous with drugs, in a subconscious attempt to protect the patient from any deficiencies in treatment that may arise through his own lack of experience. Later he finds that his drug bill is too large and he strives to modify it, but gets little help in his efforts apart from friendly hints from colleagues.

The rapid changes in money value in Germany and Austria have necessitated an even more drastic survey of the drugs in use than is necessary in this country. Dr. A. FRÖHLICH and Dr. R. WASICKY[1] have recently pointed out how drugs can be prescribed economically and in what form they can best be given. The information must be especially useful to the young practitioner, for whom the book forms an epitome of practical therapeutics. On the continent fluid medicines are ordered by weight and not by volume, as in this country, and, as a lesson in economy, it is interesting to read that the practitioner is recommended to order codeine phosphate 0·05 aq. dest., ad 200·0, in preference to the same drug made up aq. dest. 200·0. The latter brings the medicine above the 200 gramme limit and so will be charged more heavily than the former. Some of the general rules for economical prescribing are worth noting. Home drugs are to be preferred to foreign ones, tablets to powders and mixtures, and solid preparations to fluid ones; the use of medicines given in drop form is to be limited; infusions and decoctions of non-poisonous drugs should be made by the patient at home; tap-water is generally as good as distilled water; in external medicines alcohol can usually be eliminated and in liniments can be replaced by ammonia; pills should only be used when the active substance forms the greatest part of the pill mass; proprietary preparations should only be prescribed on exceptional occasions and patented names should be replaced by chemical ones. Another publication[2] contains an extraordinary amount of information on everything to do with the practical aspects of drugs; a feature is that the cost of all drugs mentioned is given, and two sections on cheap and dear drugs are included. The prices must be somewhat indefinite owing to the uncertainty of the mark, but the idea is excellent. It is carried further by the frequent references from expensive drugs under proprietary designation to the cheaper form of the same under its scientific or non-patented name. A certain number of prescriptions in this part will help the beginner, and practical notes on treatment are given. Prof. C. Bachem, of Bonn, treats[3] the subject rather differently. This book directs the doctor who has some knowledge of theoretical pharmacology to use the right drug in the right place and in the right manner. Experimental pharmacology has in the past been separated and treated too far apart from practical medicine, and the author's aim is to bridge the gap for the practitioner by treating of different diseases and functions of the body and by bringing together and describing the drugs used for them. This therapeutic arrangement entails the duplicating of some drugs and a considerable amount of cross reference. The drugs are well and clearly described. Proprietary preparations naturally occupy a large portion of the book, and many of those described are little used in English-speaking countries, but this adds to the value of the book, for those commonly used in this country can easily be found in English books. The index of the firms which manufacture the drugs, unobtrusively placed in the book, may be of great use. The author believes that as proprietary preparations abound, there is a demand for information about their composition and contents; for in the battle against quackery and swindling the doctor must possess and impart information on their nature and value in the interests of the public and the manufacturers alike.

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[1] Taschenbuch der Ökonomischen u. Rationellen Rezeptur. Second edition. Berlin and Vienna: Urban and Schwarzenberg.

[2] Von Ziemssen's Rezepttaschenbuch für Klinik und Praxis. Thirteenth edition. Edited by Dr. Hermann Rieder and Dr. Martin Zeller. Leipzig: Georg Thieme. 1922. Pp. 339. 5s.

Annotations.

"Ne quid nimis."

MEDICAL HISTORY OF THE WAR.

We reviewed last week four large and carefully edited volumes on the Medical Services of the War in the domain of pathology and hygiene, together with the second volume on Diseases of the War. A detailed estimate of the many and varied fields which such work covers cannot possibly be made in the space at our disposal. Taking it as a whole, these volumes make most interesting and informatory reading, and in compiling an official document of the growth of medical science in the forcing house of war, the editors are to be congratulated on accomplishing a great and laborious task. These records have been evidently designed to be read as a comprehensive and consecutive study rather than as a series of monographs, and in this the system adopted of grouping the contributions with the contributors in an index at the beginning of each volume, while leaving individual chapters unsigned, helps very considerably. The reader feels that he is getting a connected story (in many parts one might almost say "romance") bearing the stamp of editorial authority in its balance and general treatment of the subject, and which is at the same time scientifically accurate in details. This sense of editorial responsibility in the reader's mind greatly enhances the value of the work as an authentic history. Also in many places this history must become a valuable work of reference, and for such a purpose it is equally well constructed. The student in any particular section can refer to the author of it merely by consulting the list at the head of the volume, while a full bibliography appended to each chapter furnishes a comprehensive reference to the bulk of the medical literature of the war.

In a general survey of medical experience there are perhaps two facts which claim attention as being essentially lessons of the war. The first is the discovery of the inadequacy of accepted theories of antisepsis in dealing with wounds under war conditions. It was found that the control of sepsis under civil conditions was a very different problem from the prevention of suppuration in wounds where satisfactory primary treatment was often delayed for days. Sir Alfred Keogh makes the striking statement that at the beginning of the war "we went straight back into all the septic infections of the Middle Ages." In recognising the part played by the body fluids, as apart from antiseptics, in overcoming infection, and in devising means to facilitate this action, pathology, chiefly through the investigations of Sir Almroth Wright and his fellow-workers made a great step forwards. The other outstanding fact brought home by the modern conditions of warfare is the paramount importance of hygiene in conserving life and promoting efficiency. It was realised from the first that in a campaign involving millions of men the way to success lay in sanitation. The results of the work done in maintaining the general health and efficiency of the fighting forces and of the civil population under the severest conditions will remain as a benefit to humanity; in a fuller appreciation of the meaning of economy and in the widespread awakening of a "sanitary consciousness" we learned a lesson in the war which can well be adapted to times of peace. As a military text-book, the Medical History of the War will occupy a prominent place, and will form, in the unfortunate event of some future warfare in any part of the world, the basis of sound medical administration. The books are well printed and on the whole the illustrations are good, but the binding is at the best fair. Volumes intended largely for reference should at least be strongly backed, which these are not. The tooling is poor, and their appearance in a library—for they should be on every medical man's top bookshelf—can hardly be called handsome.

THE BLOOD IN SMALL-POX.

Prof. W. H. Hoffmann,[1] of Habana in Cuba, where an epidemic has been prevalent for three years, has examined the blood in 300 cases of small-pox, and has come to the following conclusions. (1) The total number of leucocytes is subnormal during the first three days, amounting only to 4–6000. It rapidly rises after the fourth day, and between the ninth and fourteenth days shows an average count of 17,000, in some cases as much as 30–40,000. In the third week there is an average leucocytosis of 10–12,000, and occasionally 24,000. During the next three weeks the number of leucocytes gradually falls, but still remains fairly high—viz., 9–12,000. Prof. Hoffmann was unable to pursue his observations beyond the sixth week, by which time the leucocyte count had not yet become normal. (2) The differential count shows considerable variations from the normal. The number of polymorphonuclears is diminished in the first week, being on the average 20–30 per cent., and in some cases only 12 per cent. Subsequently the polymorphonuclears remain at about 40 per cent. until the end of the sixth week. There is a considerable increase in the eosinophils, which in the first three weeks number 3–10 per cent. on the average. After the eighteenth day they rise to 15–20 per cent., and sometimes to 30 per cent. Corresponding to the diminution of the polymorphonuclears there is a well-marked increase of lymphocytes. During the first week they are 45 per cent., in the third week 65 per cent., and later they are still 40–50 per cent. Readings of 60–75 per cent. are not unusual. The large mononuclears are also increased, especially in the first two weeks, being on the average 4–8 per cent., and not infrequently 20 per cent. Specially characteristic of small-pox is the appearance of pathological cells in the blood in the form of myelocytes which are hardly ever absent. In the first three weeks they amount to 1–3 per cent., and often number 4–5 per cent., and even 10–12 per cent. Later they become somewhat less numerous. A similar blood picture is only to be found in varicella, in which, however, the total number of leucocytes is generally rather diminished with an occasional slight rise about the eighth to tenth day of disease (10–12,000). Prof. Hoffmann thinks that in suspected cases examination of the blood may be of diagnostic value. (3) No striking changes were observed in the number of red corpuscles and hæmoglobin content, nor did the red corpuscles show any pronounced degenerative changes.

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[3] Arzneitherapie des praktischen Arztes. Third edition. By Prof. C. Bachem, of Bonn. Berlin and Vienna: Urban and Schwarzenberg. Pp. 296.

[1] Münchener medizinische Wochenschrift, August 10th, 1923.

MEDICAL RESEARCH IN JAPAN.

We have lately received a number of publications from Japan which testify to the activity with which medical research on modern lines is pursued in that country. In the first place there are several bulky numbers of the twenty-ninth and thirtieth volumes of the well-known journal *Mitteilungen aus der Medizinischen Fakultät der Kaiserlichen Universität zu Tokyo*, with many solid papers on a great variety of subjects—lymphoma leukæmia and allied conditions, mathematical hydrodynamics of cerebro-spinal fluid, the culture of rabies virus in vitro, and so forth. Next there are three parts of a new journal issued by the National Research Council of Japan as the *Japanese Journal of Medical Sciences: Abstracts*, which gives abstracts (in some cases titles only) in German or English of the papers published in the Japanese periodicals. In some of these the papers appear in a European language, and would be easily available to those who were in the habit of consulting the journals in question. But many of them are originally in Japanese, and this new publication certainly gives a surprising revelation of the bulk and quality of medical research which is printed in a form which makes it quite inaccessible to most people who might be interested. The topics and the way in which they are dealt with are quite Western in character, and it is interesting to compare the number of abstracts appearing under each head with their representation in European and American work. Part I. includes pathology (260 items); Part II. physiology (25), pharmacology (53), biochemistry (144), serology (41), forensic medicine (6), protozoology (3), bacteriology (138), hygiene (36), and anatomy (95); Part III. internal medicine (13), surgery (9), gynæcology and tocology (95), dermatology (321), urology (120), ophthalmology (106), pediatrics (106), oto-rhino-laryngology (77), and psychiatry and neurology (45). Thus pathology in our own wide sense accounts for 442 and clinical subjects for 872; to which it should be added that many of the abstracts in Part III. deal with purely laboratory investigations—e.g., comparisons of the Sachs-Georgi and Wassermann reactions are under dermatology, not serology. From all of which we may surmise that in Japan, as in this country, "medical" research tends to desert the wards for the allied field of the laboratory. The third publication to notice is the first volume of *Scientific Reports from the Government Institute for Infectious Diseases*, of which Prof. M. Nagayo is the director. This contains complete reprints of most of the papers published from the institute during 1922, translated into a "foreign language" under the editorship of Dr. Y. Miyagawa. The non-Japanese language is English in 34 papers, German in nine, and, which will please Prof. F. G. Donnan, in three Esperanto.

A cursory survey of these publications shows that a very large amount of active research work has lately been done in Japan. We can only hope that too much damage to personnel and material has not been done by the disastrous earthquake. Progress in recent years has been vigorous and determined, and the set-back, which must at the best be substantial, is surely a sad disappointment to those who have striven to build up higher education in Japan and bring their results to the notice of workers elsewhere. And it is entirely in a friendly spirit that we would remark that the imitation of Western medical research is so complete that under that name is included a good deal of work which, invaluable as post-graduate education, does not really add to knowledge, and that the free publication of these exercises increases still more the already impossible task of anyone who tries to keep abreast of advances in any but some very small corner. Will the Japanese be the first to take the step which must follow the present incoherence sooner or later, and bring up groups of scholars whose business it will be to forswear the fun of investigation and live laborious days in synthetic analysis of the data which have been already accumulated? It is a great opportunity which lies open to any school; what the world wants is discoveries not researches.

ON THE PATHOGENESIS OF DEFICIENCY DISEASE.

In the current number of the *Indian Journal of Medical Research* Dr. R. McCarrison has published his experimental researches undertaken during the last year upon the relationship between food-metabolism, iodine intake, and thyroidal activity, as well as upon the effect of insanitary conditions upon the thyroid hyperplasia. For this purpose tadpoles and pigeons were employed. Paying very particular attention to the technique of administering fat and iodine to these creatures, he has concluded that excess of fats in the food of tadpoles causes retardation in their rate of growth, and that this can be controlled by the administration of iodine in amounts of 0·5 to 1 mg. of food mixture. The effect induced by linseed oil and cod-liver oil cannot, however, be controlled in this manner. On the other hand, abnormal metamorphoses can be induced by a high iodine intake, and can be hastened by administering at the same time a higher proportion of butter. His former experiments with pigeons have shown that an excess of butter in the diet favours the development of thyroid hyperplasia similar to that in Graves's disease; but more recently he concludes that the confinement of these birds in cages which have become grossly contaminated by excreta is also a potent cause of thyroid enlargement, and that this pathological condition is not due to lack of exercise but to actual contamination of food and water by the birds' own excreta. This can be prevented by scrupulous cleanliness and by the administration of chlorine to the water. It may be that the effects of fat excess upon thyroid hyperplasia are in some way related to bacterial contamination of the digestive tract. It is curious to note that the administration of cod-liver oil affords complete protection against goitre induced by the insanitary conditions already referred to.

X RAY DIAGNOSIS OF PREGNANCY: ITS MEDICO-LEGAL VALUE.

An echo of l'affaire d'Evreux, which created much interest and not a little consternation in France and Belgium some time ago, is to be found in *Paris Médical* for Sept. 8th. It will be remembered that a certain Dr. Vallet was sued by the relatives of a lady, Mme. Jouenne, on whom he had operated on the assumption that she was suffering from a fibroid tumour. This unfortunate operation ended in a Cæsarean section and the death of the patient, whose parents brought an action for malpractice against Dr. Vallet. The action ended in favour of the plaintiffs, and in passing judgment on the surgeon, who had set out to remove a fibroid, and who had found a viable infant in its place, the legal authorities appeared to have been largely influenced by Dr. Vallet's omission to employ the X rays as an aid to diagnosis before operation. The author of the paper in *Paris Médical*, Adrien Peytel, Advocate of the Court of Appeal, points out that the judges seem to have convinced themselves that from the fifth month of pregnancy onwards it is increasingly easy to demonstrate the presence of a fœtus by the X rays. In his defence, Dr. Vallet maintained that the evidence of the X rays in such cases is not always reliable, and that the risk to the mother and infant are not negligible. This defence was not accepted. Was it sound? Mr. Peytel has inquired into this matter, soliciting the opinion of an expert radiologist, whose views are recorded in some detail. It would appear from the opinion of this expert, Dr. Foveau, that if the X rays are to be employed in the diagnosis of pregnancy, specially valuable and fragile apparatus is required, the radiologist must be highly skilled, and even when these conditions are fulfilled, it may not always be possible to give a definite opinion as to the presence or absence of pregnancy. In a case such as the one under discussion it would therefore be natural for the surgeon to hesitate before recommending a diagnostic procedure which is at once costly and uncertain. If an X ray specialist can express doubts of the reliability of a radiographic diagnosis of pregnancy, the ordinary surgeon may surely be excused if he hesitates to apply this costly diagnostic test in every case of abdominal tumour about the nature of which he has doubts. Considering what a number of tests have been devised for the diagnosis of practically every complaint to which flesh is heir, and in view of the unreliability of many of them, it seems unfair that a court of law should lay stress on one particular test of uncertain value. If every known test of a suspected morbid condition had to be carried out before a surgeon operated, he might often find that, at the completion of these tests, the patient had passed beyond the stage at which an operation could be of any use. Judgments such as those of l'affaire d'Evreux serve the sinister purpose of encouraging the surgeon to hold his hand and leave the patient to die of "natural causes."

MONOGRAPHS IN SETS.

THE custom of selling an encyclopædia in sets only has advantages and justifications which are obvious, but we can see none for the course followed by the publishers of the five "Surgical Monographs" reviewed in our present issue. Books on such subjects as the reconstructive surgery of the upper extremity, gastro-enteroptosis, transplantation of tissues, traumatic shock, and the surgery of the spleen are only obtainable together at the price of £6 5*s.* for the set. If a tradesman were to refuse to sell an egg unless his customer bought a sausage, an onion, a can-opener, and a banana as well it would not be long before he had to put the shutters up permanently. This is, of course, the business of the publishers, but we are concerned here with the unfairness to the authors of the admirable monographs and to those purchasers who are interested, for example, in orthopædics but are not in the least concerned with abdominal surgery. We protest strongly against this innovation and trust that British authors will protect themselves from any attempt to tie their works to that of others.

THE PROBLEM OF IDIOSYNCRASIES TO MYDRIATICS.

IN *Le Scalpel* for Sept. 1st Dr. G. Kleefeld, of Brussels, has discussed a subject which is of interest to general practitioners as well as to oculists. It is that of idiosyncrasy to atropine and other mydriatics derived from the vegetable kingdom. Exact information as to the frequency with which such cases of idiosyncrasy occur is lacking, but there is no doubt as to the alarming character of the symptoms of atropine poisoning in these cases. If other mydriatics of the vegetable kingdom could be substituted for atropine, the problem would be comparatively simple, but when the patient shows an idiosyncrasy to all the plant mydriatics, it may be difficult to decide on what to do. Dr. Kleefeld records the case of a man, aged 46, suffering from acute iritis. One drop of atropine was instilled, and on the same day an eczematous swelling of the lower eyelid developed. Treatment with atropine was, however, continued, with the result that the eczema rapidly spread to the upper lip where a bullous eruption appeared. Soon it became infected, an impetiginous appearance being given to it. It was thought that the atropine used might have deteriorated, although it had proved satisfactory in other cases; but no better results were obtained with fresh or sterilised solutions of atropine. An ulcer developed on the cornea, and a hypopyon formed in the anterior chamber. Though a weak solution of scopolamine replaced the atropine, matters became worse. Then an oily suspension of homatropine was substituted for the scopolamine, but with no better results. Cocaine was then tried, again with no benefit, and in the end the instillation of mydriatics was abandoned altogether. Meanwhile the ulceration of the cornea had extended in spite of the application of astringents, and paracentesis had to be performed. An extensive leucoma developed largely because of the failure attending the use of the mydriatics. Some time later the patient was readmitted to hospital with acute iritis of the other eye. The instillation of atropine had the same disastrous effects as on the former occasion. Parenteral injections of milk were given without benefit, and changes were again rung on scopolamine, homatropine, and cocaine, but with no better results than before. Failure changed to success only when plant mydriatics were abandoned in favour of the synthetic euphthalmine, a hydrocyanic derivative of methyl-vinyl-diacetonalcamine. In a 2 or 4 per cent. solution this drug maintains mydriasis for four to five hours, during which there is no paralysis of accommodation. This drug must be used with caution for fear of glaucoma and blepharo-conjunctival catarrh, but, used as a powder and not in solution, Dr. Kleefeld has, during the past two years, found it a very effective mydriatic, and he has not known it to give rise to troublesome sequels. Its suitability in cases of atropine idiosyncrasy adds appreciably to its value.

MENINGITIS DUE TO WORMS.

Prof. P. Gautier and Dr. R. Guder,[1] of the Children's Clinic at Geneva, remark that as long ago as 1863, when Lebon endeavoured to make a distinction between the two conditions, the occurrence of meningitis due to worms in children and adults and its resemblance to tuberculous meningitis had been described. Subsequently numerous cases of meningitis due to worms were published, but were regarded with scepticism by many critics who looked upon them rather as examples of meningism or pseudo-meningitis, owing to the occasionally mild and vague character of the clinical symptoms and the absence of any obvious changes in the meninges caused by the presence of the intestinal parasites. It is only recently that the cerebro-spinal fluid has been studied in detail, as in the cases recorded by Guillain and Gardin, and Lancelin, as well as in one which came under the present writers' observation in a boy aged 5 years. The clinical symptoms in all three cases were identical with those of tuberculous meningitis, but disappeared after expulsion of the intestinal parasite, which in the case of Guillain and Gardin was *Ascaris lumbricoides*, and in those of Lancelin and the present writers *Tænia solium.* Apart from the absence of the tubercle bacillus the changes in the cerebro-spinal fluid—viz., hypertension, lymphocytosis, excess of albumin and cells, and a positive Pandy's reaction—were the same as in tuberculous meningitis. As regards the pathogenesis of the condition which, owing to the changes in the cerebro-spinal fluid is undoubtedly meningitis, the reflex theory no longer holds good, and the only satisfactory explanation is the action of the toxins of the worms on the meninges and nerve centres. The presence of these toxins has been proved experimentally by Simonin, who by injecting extracts of different worms into animals was able to produce nervous symptoms, such as tremors, contractures, and paralyses. In the human subject, as Guillain and Gardin point out, the meningeal symptoms are doubtless produced by the toxins of the parasites reaching the cerebro-spinal fluid by the choroid plexuses or the blood-stream. Several suggestions have been made to explain the rarity of this form of meningitis in spite of the frequency of helminthiasis, such as the condition of the intestinal canal favouring the toxic action of the parasites, the greater toxicity of the worms at certain times, and the increased permeability of the intestinal wall. The chief cause, however, is to be found in the neuropathic character of the individual, as is shown by the fact that in many of the cases there was a history of nervous antecedents such as convulsions or Little's disease. A clinical diagnosis between this condition and tuberculous meningitis will be difficult if not impossible, apart from the therapeutic test. In any cases of doubt, therefore, an anthelmintic treatment should be tried. In cases of tuberculous meningitis it will do no harm, while, if intestinal parasites are responsible for the condition, a rapid and complete cure will be effected.

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[1] Revue médicale de la Suisse romande, September, 1923.

SYPHILIS OF THE ORBIT.

Dr. Jarold E. Kemp,[1] of the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital, who records four personal cases due to acquired syphilis, remarks that syphilis of the orbit, first described by Boerhaave in 1749, is a rare manifestation of the disease, not more than 150 authentic examples having previously been published in either acquired or congenital syphilis. The condition was found in only 5 of about 6000 cases of syphilis at the Johns Hopkins Hospital, and in only 17, or 0·013 per cent., of 130,000 patients with all types of eye disease seen in the Leipzig Clinic prior to 1909 (Birch-Hirschfeld). In most cases the periosteum is first involved, and the bone is secondarily invaded, but in some cases there is a true syphilitic osteitis. The histological appearances are the same as in gummatous processes in the soft tissues, and sometimes cannot be distinguished from tuberculosis. The earliest symptom is pain, which may precede the other symptoms by weeks or months, and is usually nocturnal or constant with nocturnal exacerbations, and is intensified by pressure over the globe and on attempting movements of the affected eye. It often radiates over the side of the head involved, and may be referred to the circumference of the orbit. Exophthalmos is practically constant, but its degree depends upon the situation and duration of the lesion. In the early stage it is absent or slight, but later it becomes very pronounced. As the result of pressure on important structures within the orbit—viz., the optic nerve, blood-vessels, and motor and sensory nerves—a number of other symptoms appear. In the early stage, when pain is the most prominent symptom, there may be little or no disturbance of vision, and ophthalmoscopic examination reveals only slight haziness of the disc and congestion in the vessels. In a later stage loss of vision and changes in the optic nerve, such as unilateral choked disc followed by secondary optic atrophy, set in. Ocular palsies, such as internal, external, or complete ophthalmoplegia, may occur, and are determined by the site of the lesion and the nerves involved. Numbness and tingling of the skin of the forehead and cheeks from pressure on the first and second branches of the trigeminal nerve is a frequent complication, and on examination complete anæsthesia, hypæsthesia, or hyperæsthesia of the skin supplied by these nerves is found. Trophic lesions of the lids and cornea are sometimes present. Pressure on the arteries and veins gives rise to congestion and œdema of the lids, chemosis of the bulb and conjunctiva, and sometimes dilatation of the temporal vessels. The most serious complication of orbital syphilis is rupture of the gummatous process into the neighbouring cavities, such as the cranial cavity, and nasal and paranasal air spaces, giving rise to secondary infection and fatal meningitis. In the absence of treatment the prognosis of orbital syphilis is bad. Not only is complete blindness almost certain to occur from secondary optic atrophy, as in one of Dr. Kemp's cases, but there is always the risk of fatal meningitis. The lesion usually heals more slowly in congenital than in acquired syphilis. Under early and vigorous treatment the results are often brilliant, as in two of Dr. Kemp's cases, in which the pain was relieved and the vision restored to normal by a few doses of arsphenamin.

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[1] Archives of Dermatology and Syphilis, August, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLI.—TREATMENT OF RETENTION OF URINE.

RETENTION of urine is caused by a number of widely differing factors, which may be grouped under three headings—mechanical, reflex, and nervous. It may, moreover, be complete, when no urine whatever can be passed and the distension of the bladder gives rise to intense pain (acute retention), or incomplete, where the patient can pass a certain quantity of urine but cannot empty his bladder. The residue left behind varies from a few drachms to several pints; clinically a distinction between cases with over-distension and those without is important, as the treatment should be varied according to the amount of distension present. It is not attempted here to deal with the treatment appropriate to all the different types of retention; I will confine myself to some of the most common of the difficult problems.

Retention Due to Stricture.

Retention following stricture may be due to several causes. (*a*) Impermeable stricture (so tight that no urine can pass through it) is rare, because the patient usually comes for relief long before this stage is reached. (*b*) In cases of moderately tight stricture, retention may follow excess in alcohol, over-indulgence in food, or constipation. (*c*) Even in cases of large calibre stricture retention often follows dilatation, especially if several instruments, or too much force, have been used. (*d*) An acute urethritis often causes retention in patients with stricture, of whatever calibre.

(*a*) In cases where the stricture is so narrow that it causes complete, or almost complete retention, attempts should be made to pass a very small (2 or 3 F.) gum elastic bougie; if it passes easily it may be followed by others, until the size which is gripped by the stricture is reached. The patient will probably then be able to pass urine, and further dilatation should be postponed for a few days. If, however, there is considerable difficulty in passing the finest filiform, it should be tied in place and the patient put to bed. The urine will trickle alongside the bougie, and can be collected in a urinal. On successive days this operation should be repeated, increasing the size of the bougies until the patient is able to pass urine naturally. Subsequently the stricture should be gradually dilated at weekly intervals. If no instrument can be passed at the first attempt, the patient should be put to bed and given an enema, followed by 30 ♏ tr. opii and a hot bath. If no urine is passed in the bath, a second attempt to insert a filiform should be made, and, if necessary, a third, under anæsthesia. If a filiform can be introduced it should be followed by the guide of a urethrotome, and an internal urethrotomy performed. If no instrument can be passed under anæsthesia, a Wheelhouse operation should be performed immediately. Soft gum elastic bougies are the safest instruments for dealing with tight strictures. Fine whalebone or metal bougies are dangerous on account of the ease with which a false passage is made. Occasionally a gum elastic bougie coils up in the urethra without passing the stricture, when the coil can be felt by palpating the perineum. It is useless to attempt catheterisation unless the urethra will admit a No. 6 F. bougie easily.

(*b*) Retention following alcoholic excess is due to congestion. A moderate-sized bougie (6 to 10 F.) usually passes easily, and if the patient cannot then empty his bladder the urine should be drawn off by means of a fine catheter. The patient should be given a brisk purge (calomel, followed by salts) and sent home to bed. In rare cases the catheter must be passed night and morning for a few days, but it is better not to attempt regular dilatation until spontaneous micturition is well established.

(*c*) Retention following instrumentation is also due to congestion, and is usually of short duration. If the patient is in distress, either a bougie or catheter about two sizes smaller than the last instrument used may be inserted, but not till the purge, followed by a hot bath, has failed. Intermittent dilatation should be carried out very slowly by one size at each sitting, since retention follows too rapid dilatation. If it is essential to dilate a stricture rapidly, internal urethrotomy is much safer and more efficacious than forced dilatation.

(*d*) In cases of stricture complicated by acute urethritis retention is caused either by the severity of the urethritis or by the use of too strong injections or irrigations. A catheter should not be used unless all other methods (purges, hot baths, sedatives, &c.) have failed. The urethra should first be washed out with sterile saline or very dilute (1 in 12,000) oxycyanide of mercury solution, when a small soft catheter may be passed; acute retention is the only indication for passing an instrument along an acutely inflamed urethra.

Retention Due to Foreign Bodies Impacted in Urethra.

This is almost invariably due to impacted calculi, as foreign bodies introduced from without tend either to pass into the bladder, or are small enough to be expelled by the flow of urine. A stone may be impacted (*a*) in the posterior urethra, when it should be pushed back into the bladder by means of a full-sized steel sound, and immediately crushed; (*b*) in the bulb if the urethra is strictured, when it is best to cut down on the urethra, remove the stone, and at the same time divide the stricture; or (*c*) in the fossa navicularis, whence it can be removed by means of a fine forceps, after section of the meatus itself.

Prostatic Retention.

In cases of prostatic abscess, which is the most frequent cause of retention occurring in the course of an acute gonorrhœa, spontaneous micturition is always re-established as soon as the pus is evacuated, and the patient should not be catheterised unless it is impossible to operate immediately. The prostate should be exposed in exactly the same manner as in perineal prostatectomy, and both lobes should be incised and drained. It is a mistake to open these abscesses either through the rectum or urethra, as troublesome fistulas result. In cases of acute prostatitis, a catheter should be passed if the retention is complete, or if the bladder can be felt rising above the pubis after micturition. The urethra should be irrigated with a very mild antiseptic beforehand, and the bladder should also be washed out after the urine is evacuated. The utmost gentleness is necessary in treating these cases, as rough instrumentation may result in an abscess.

Prostatic obstruction in elderly men is due to benign or malignant enlargement of the gland. The radical treatment of this type of obstruction is, of course, prostatectomy, and catheterisation should be looked on either as a preliminary to removal of the gland, or as a palliative measure in cases where operation has been refused or is definitely contra-indicated.

(*a*) *Benign Enlargement.*—Three types of retention are met with in these cases: partial retention without distension, partial retention with distension, and complete retention. In the first type, it is better not to pass any instrument until operation has been decided on, especially if the abdomen is resonant down to the pubis, and the bladder cannot be felt after micturition. A rough estimate of the amount of residual urine can be obtained by bi-manual palpation, with a finger in the rectum. When the patient is in hospital a catheter must be passed to carry out renal function tests, and the residual urine should be measured at the same time. The chief exceptions to this rule are: (1) cases where malignancy of the prostate is suspected, when the bladder should be emptied to facilitate examination of the gland; (2) where the symptoms suggest the presence of a new growth of the bladder, &c., in addition to prostatic enlargement, when an early cystoscopy is indicated. In the second type of case, the bladder can be felt as a pear-shaped tumour in the lower abdomen, which often extends as high as the umbilicus. These patients usually have overflow incontinence and badly damaged kidneys, and are always in a critical condition. The sudden emptying of an over-distended bladder is usually followed by severe hæmaturia, which may end in complete suppression of urine. It is therefore necessary to evacuate the contents of the bladder very slowly, and the treatment should not be commenced until the patient has been put to bed. A catheter, armed with a spigot, may then be introduced and tied in place; the spigot is removed every hour, from four to five ounces of urine allowed to escape. If the urine drains away too quickly a corresponding amount of sterile saline should be injected into the bladder. The patient should drink at least five pints of barley-water, or some other diuretic fluid daily. The height of the bladder tumour should not fall by more than an inch a day. Once it is completely emptied (after four to five days) it must on no account be allowed to refill, and either a one- or a two-stage prostatectomy (according to the renal efficiency) should be performed. Many surgeons prefer to do an immediate cystotomy on these patients, and to empty the bladder slowly through the suprapubic tube. Either method is satisfactory if strict care is taken to avoid infection. When complete retention follows a chill, indiscretion of diet, or occurs without obvious cause, the power of spontaneous micturition generally returns in a few days, but occasionally the retention becomes chronic. Acute retention is always exceedingly painful, and demands instant catheterisation; the withdrawal of 15 oz. will completely relieve the patient, who should then be put to bed. If his bladder is distended it should be emptied by slow drainage, described above; if not, it may be completely emptied by a catheter passed three times in the 24 hours.

(*b*) *Retention Due to Malignant Disease of the Prostate.*—The same types of retention occur as in cases of simple enlarged prostate, but the malignant gland does not as a rule give rise to marked obstruction until the tumour is inoperable, so that a permanent cystotomy is usually the only possible operation. It should be performed early, and catheterisation should only be looked on as a preliminary to this operation.

Clot Retention.

This difficult and painful type of retention is caused by any hæmorrhage copious enough to allow of the blood coagulating in the bladder. The hæmorrhage may come from the posterior urethra (false passage), from the prostate (rupture of a small vein on its surface), from the bladder (hæmorrhage from a new growth), or from the kidneys (trauma or new growth). When the source of the hæmorrhage is diagnosed, it is still difficult to decide whether the bleeding is progressing or has ceased. In the former case the hæmorrhage should be checked before emptying the bladder, in the latter the bladder must be emptied first. If the blood is bright-red the bleeding is usually active; if a black tarry mixture of blood and urine is withdrawn it has ceased. The clots should be washed out by means of a large metal catheter, since small instruments quickly become blocked with blood-clot. If this happens, a small quantity of lotion (about one or two ounces) may be forced through the instrument by means of a powerful syringe to clean it. The bladder should be syringed out until the lotion returns clear, which may take an hour. In extreme cases a Bigelow's evacuator may be required. When the bladder is free from clot a soft catheter should be tied in, and the patient encouraged to drink as much as possible. If the hæmorrhage is continuing an immediate operation is necessary. In renal cases there is usually little difficulty in diagnosing the side affected. If the bleeding comes from the bladder itself, or from the urethra, a cystotomy is indicated. The clots should be turned out, and the hæmorrhage controlled either by removal of the cause or else by packing.

J. SWIFT JOLY, F.R.C.S.,
Surgeon, St. Peter's Hospital for Stone, &c.

Special Articles.

THE REMUNERATION OF INSURANCE PRACTITIONERS.

The following letter has been received from the Ministry of Health in reply to the communication from the Insurance Acts Committee of the British Medical Association (see The Lancet, Oct. 13th, p. 849), and it will be seen that the Minister of Health definitely declines to accede to the recommendation of the Committee that the question at issue should go to arbitration.

Sir,—The Minister of Health has given most careful consideration to your letter of the 8th instant indicating the views of the Insurance Acts Committee on the offer to insurance practitioners made in my letter of the 3rd instant.

The Minister does not propose to return a detailed answer to your letter. He does not, of course, accept the statements and arguments in that letter as accurate or sound, but he thinks the main issue will only be obscured by prolonging paper controversy. Lest there be any ambiguity as to the position, he desires me to state quite clearly that the offer made in my letter of the 3rd instant represented a considered decision given by him in a matter in regard to which the responsibility rests on him as a Minister of the Crown. Before arriving at that decision he naturally weighed to the best of his power the claim and the representations made on behalf of the profession and the views of the approved societies. But the decision is his decision, arrived at on the merits of the case. He maintains the view that the alternative offers made represent a settlement fair alike to the profession and to the insured population. He most earnestly hopes that on a fuller consideration the profession may see their way to accept one of the alternatives, knowing, as he does, that they realise the undesirability of prolonged controversy on a matter of this kind.

He would wish me to say something only on two points in your letter, the question of rural practitioners and the question of arbitration.

As regards rural practitioners, he is very sensible of the peculiar difficulties of their position, and is very desirous of finding a remedy. The matter is now receiving his serious consideration, but, as already stated, he does not think that it can or should interfere with a settlement of the general capitation fee, the administrative objection to differential capitation fees being overwhelming.

As regards the question of arbitration, the Minister cannot forget that the basis of remuneration was exhaustively considered by an arbitration tribunal some three years ago, and he has accepted their award as one of the data on which the Government's offer has been determined. Any further arbitration would lead to undignified disputes between the doctors and the approved societies, which are to be deprecated in the interests of successful working of the panel system, and the Minister himself has in fact regarded his position as that of an arbitrator with the added responsibility of his Ministerial duty.

I am, Sir, your obedient Servant,

(Sgd.) W. Arthur Robinson.

Dr. Cox, the Medical Secretary of the British Medical Association, has sent the following reply :—

Sir,—I beg to acknowledge receipt of your letter of the 15th October. The Committee understands :

1. That the Minister is unable to accept the suggestion that arbitration offers a method of arriving at a peaceful arrangement.

2. That he is unwilling to allow any further negotiations until he has been convinced by some other method that it is impossible for him to obtain a satisfactory service under his present offer.

The Committee would have preferred the method either of arbitration or of negotiation, but has no option but to accept the responsibility he now imposes on it.

The Committee's position is (1) that on the purely economic question, on which it is still prepared to negotiate, the remuneration the Minister suggests is insufficient, and that there has so far been no real answer to the facts and conclusions set out in the Committee's first memorandum M 1 and the accompanying statement by Professor Bowley.

(2) That no national medical service based on an insurance system can be satisfactory unless it attracts all types of general practitioners in sufficient numbers and so supplies the industrial population, whether in town or country, with that choice of doctor and satisfactory service which obtains among other classes of the population.

(3) That while willing to serve the community to the best of its ability and to make any satisfactory arrangement to this end with the representatives of the community, the profession is not prepared to accept the position of being under the dominance or control of a particular section.

(4) That arrangements consistent with these principles can be agreed to by the Committee, and would not, in its opinion, involve any further contribution from the taxpayer or any diminution of the benefits to which insured persons are entitled.

I am, Sir, your obedient Servant,

Alfred Cox,
Medical Secretary.

Insurance Practice : Conference at the Ministry of Health.

A Conference, presided over by Sir Arthur Robinson, the First Secretary to the Ministry of Health, accompanied by other officials of the Ministry, took place on Tuesday, Oct. 16th, between representatives of the Consultative Councils of Approved Societies and representatives of the Insurance Acts Committee of the British Medical Association. The Conference met to discuss certain outstanding questions relating to the scope and character of the service to be provided by insurance practitioners. The question of the remuneration of insurance practitioners was not discussed.

Sir Arthur Robinson reported to the Conference that some misunderstanding existed in regard to a statement attributed to Dr. Brackenbury, the chairman of the Insurance Acts Committee, and said to have been made by him at a Conference of Local and Medical Panel Committees held on June 7th, to the effect that the Insurance Acts Committee could not agree to the claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients.

In order to remove any misapprehensions in this matter, Sir Arthur Robinson quoted the exact words used by Dr. Brackenbury, which were as follows :—

> "Everything which was, properly speaking, of a general practitioner kind should be within the service, and everything which was properly of a specialist kind, whether performed by a man who did that thing only, or by a general practitioner who had made himself specially skilled in that thing, should be outside the service. This division had been attempted by the Insurance Acts Committee in the form of two schedules, one showing the services included in the contract, the other the services not included. What a general practitioner did as a general practitioner was inside, what a general practitioner did as a specialist was outside. The claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients was not one to which they could agree for one moment. In so far as a general practitioner was in any degree a specialist, his specialist services were outside the contract, and he should have a right to charge for them."

Labour Proposals.

The General Council of the Trades Union Congress and the Labour Party National Executive have prepared a pamphlet dealing with National Health Insurance Medical Benefit. They recommend as a basis of the panel service :—

Free choice of doctor.

Limitation of panel lists to 2500, or 4000 when an assistant is kept.

Panel doctors not to be permitted to keep more than one assistant except in special circumstances. Partners to be regarded as permanent deputies.

Better surgery accommodation.

Simplification of the certificates which doctors must sign.

Revision of the system of dealing with so-called "excessive prescribing."

More effective means of securing the removal of unsatisfactory doctors from the panel.

An agreement for a period of five years.

If requirements effectively fulfilled, a capitation fee of substantially 9*s.* 6*d.*

Institution of dental benefit and provision of increased diagnostic facilities at earliest possible moment.

Suggestions as to revision of methods of financing National Health Insurance are also included in the pamphlet.

TUBERCULOSIS.

Trudeau Sanatorium.

THE thirty-eighth annual medical report of the Trudeau Sanatorium might well be described as a text-book of tuberculosis, with this difference that while most text-books contain much out-of-date information, this report deals with the latest experiences of some of the most eminent tuberculosis specialists in the U.S.A. In his introduction, Dr. Lawrason Brown refers to some very interesting work carried out by Dr. Petroff and Prof. Zinser at Columbia University on skin hypersensitiveness. They attempted to produce it by the use of tubercle bacilli killed by various degrees of heat, and also by the use of two fractions of the tubercle bacillus obtained by hydrolysis. They discovered two bodies, one a mixture of nucleoproteins which produced hypersensitiveness and a skin reaction, and another body which does not produce hypersensitiveness, although it causes a more pronounced skin reaction than the first body. Many interesting problems have been opened up by these investigations which are still proceeding. Dr. Lawrason Brown's essay on tuberculin as a diagnostic agent is worth reading by the many who have abandoned it on account of the mischief with which it has been credited.

> "For more than 20 years we have used the subcutaneous tuberculin test, and have encountered no untoward results of any moment. When I pause to think to-day of the chances we ran in giving the test to many patients with extensive pulmonary tuberculosis but few physical signs, I am convinced that, given as we give it to-day, the tuberculin test is never harmful. We use it only in patients with doubtful or slight parenchymatous X ray lesions, in whom other sufficient data are lacking. Should the test prove to be negative, we return the patient to his home and work, telling him that if he should ever wish to re-enter the institution, we will take him in at once. So far no such patient has ever applied for readmission."

It is strange, but true, that Trudeau Sanatorium, to which tuberculosis specialists all the world over look for inspiration is, according to the grading of the American Sanatorium Association, only a Class B institution. This system of grading was instituted by the National Tuberculosis Association because unsatisfactory conditions were found to exist in many sanatoriums where buildings, equipment, personnel, and service were inadequate. Trudeau Sanatorium lapses into Class B chiefly on account of the lack of infirmary beds; the sanatorium which admits various grades of patients should, if it wishes to belong to Class A, have from 25 to 50 per cent. of all its beds so-called infirmary beds. This standard reflects the growing tendency to regard rest rather than exercise as of therapeutic importance in tuberculosis, and probably most sanatorium physicians with long experience would agree with Dr. Lawrason Brown in his verdict that "the treatment of patients has slowly but definitely changed in the last 22 years."

The Rigours of the Tuberculosis Campaign in Illinois.

The Public Health Department of Illinois has issued a pamphlet dealing with the regulations, put into force since Jan. 1st, 1923, for the control of tuberculosis. It is customary in England to mention, more or less as an after-thought, the penalties attaching to the contravention of a given law. The Illinois public health authorities introduce their readers to the subject under discussion by informing them that health or other officers, not complying with the regulations, are subject to a fine of $200.00 for each offence, or imprisonment in the county gaol for six months. It would seem to be incumbent on practically every person in Illinois to notify tuberculosis to the health authorities, for Rule 1 runs thus:—

> "Every physician, laboratory director, nurse, or other attendant, superintendent of any hospital, asylum, orphanage, gaol, or similar institution, teacher in any school, proprietor or manager of any business, hotel, lodging or boarding house, parent, guardian, householder or any other person having knowledge of a known or suspected case of tuberculosis, shall immediately report such known or suspected case of tuberculosis in writing or by telephone to the local health authority."

According to Rule 4, no person suffering from active or open tuberculosis shall share a bedroom with any other person unless that person is also tuberculous or a nurse under the direction of a physician. There are several other rules conceived in the same spirit. After having made it abundantly plain that to be convicted of tuberculosis may be tantamount to ostracism and persecution, the health authorities of Illinois are perhaps unduly hopeful in expecting a ready response to their plea for early diagnosis.

Yorkshire Tuberculosis Society: Artificial Pneumothorax Work in Dispensary Practice.

On Sept. 29th, at the Tuberculosis Dispensary, Sheffield, Dr. J. Rennie, the President, in the chair, Dr. C. Rolleston, M.O.H., Rutland, gave a paper on artificial pneumothorax work in dispensary practice, the object of which was to demonstrate that such work could be domiciliary and ambulant. The population concerned was 66,000—half in a county borough (occupation engineering), half agricultural, and scattered over 150,000 acres. Annual deaths from phthisis, 49; notifications, 96. The work was begun seven years ago, in which time pneumothorax had been attempted in 71 patients (30 male, 41 female), whose ages ranged from 14 to 60 years. Nine of the 71 had unilateral disease, 59 bilateral, in 53 of whom the affection of the worse lung was in the third stage. The remaining three had bronchiectasis. Sixty-five of the 71 showed positive sputum. The number in whom pneumothorax was established was 50.

Technique.—Injections of 300 c.cm. for the first operation, and not more than 500 subsequently; larger doses might lead to mediastinal dislocation and pleural effusion. The operation was performed twice a week for the first month and once weekly for the next two or three months, all this at the patient's home. Thereafter, generally at the dispensary, twice a month up to six months, and then every three weeks. 1883 punctures had been performed, with no fatalities. Alteration in the manometer reading from change of posture was noticed; in a contracting pneumothorax one was enabled to introduce more air by changing the patient from the dorsal position to the prone, or vice versa.

Results.—The severe nature of the disease, detailed above, must be considered. Thus of the 21 patients in whom pneumothorax was *not* established, owing to adhesions, 14 were dead, and in only 3 of the remaining 7 could the condition be deemed satisfactory. But of the 50 with an artificial pneumothorax the result was excellent in 11, good in 15, equivocal in 3. Some of those who had died, 21 in number, had been afforded temporary relief, being enabled to return to work, or the sputum becoming negative. Two such showed well-marked bilateral disease on X ray examination. The most frequent cause of death was spread to the other lung, laryngeal and intestinal affection occupying the second place. Many failures must be due to postponement of the operation.

General Observations.—Pleural adhesions were hard to diagnose beforehand. Only 13 patients gained weight, the amount varying from 1 lb. to 54 lb. No effect on pyrexia and quick pulse was recorded in 26 cases. In 11 with a normal temperature the pulse was brought down, though sometimes that took months. In seven instances both temperature and pulse were abated. Thus the effect of pneumothorax on pyrexia and tachycardia varied, and the rapid defervescence so often described was rare. Displacement of the heart was noted in 21 left-sided and 15 right-sided pneumothoraces. Cardiac murmurs occurred six times, two being certainly functional. Displacement was an early event, and might persist for years without inconvenience. Six cases of mediastinal dislocation were diagnosed. In a successful case sounds conducted from the collapsed lung were heard on the healthy side. Subcutaneous emphysema was of prognostic value. Thus of 24 cases that had done well, only 2 showed marked emphysema and 17 had none. But 18 unsatisfactory ones had it. Pleurisy occurred in 21 of the 50 cases, generally early; 18 of the 21 had temporary fever. Pleural effusion was difficult to demonstrate; there might be much splashing, but no yield from exploratory punctures. The after-history of two cases sent to Mr. Romanis for thoracoplasty[1] was given. The lecturer advised the provision of motor-cars for tuberculosis officers in sparsely populated districts, as tending to save dispensary accommodation.

Dr. W. C. Rivers, to show that, as evidenced in recent foreign literature, X ray control was not essential, exhibited a patient who three years ago was given three months to live. Now, a year after leaving off refills, there was well-nigh perfect recovery. This case had never been X rayed. On the other hand, he showed pneumothorax skiagrams taken by highly skilled hands which told nothing. He welcomed the paper as inspiring, and gave four differential signs between pleural and pulmonary oscillations.—Dr. C. Woodcock gave some experiences. He had heard an adhesion rupture, seen the uvula emphysematous, and had a case of embolism. He held the frequently advanced opinion that the symptoms of embolism could arise also from pleural shock. A slow induction was best. He agreed with the lecturer that intestinal disease was a contra-indication; laryngitis was not. He thought oxygen gas and a small needle of use in avoiding pleurisy. Dumarest was right in advising that a pneumothorax, if it had to be relinquished, should be left off gradually. The speaker had used pneumothorax for stopping hæmoptysis.—Dr. Z. Fernandez thought that whatever the future rôle of current bacteriological means of treatment might be, these were not specifics, and could not oust lung compression therapy in appropriate destructive lung disease or in obstinate, severe hæmoptysis. Artificial pneumothorax certainly had its failures. In 1921 70 patients were traced who had been under treatment by present or former colleagues from 1912 onwards; 60 per cent. of the 70 were dead; 60 per cent. were dead, too, of 134 cases treated from 1915 to 1920. Coming to more immediate results, 48 sanatorium cases in 1921 and 1922 showed a death-rate of 30 per cent., the material being progressive Stage II. and III. cases. It had been argued that the treatment had not appreciably bettered the Leeds tuberculosis death-rate over that of other Yorkshire county boroughs. In Leeds the bronchitis death-rate was proportionately smaller, however, than in other areas which had a smaller tuberculosis death-rate. In hæmoptysis pneumothorax treatment was now routine, the patient being transferred to hospital when the bleeding had been controlled. As to re-administration of artificial pneumothorax, two of the speaker's cases in which treatment was commenced in 1917 had recurrence on three different occasions, and no difficulty was met with in finding free pleura again. One out-patient had had over 70 refills in four years. Some cases did not require prolonged treatment. The continental technique, recently witnessed by the speaker, of fixed cylinders and rubber bags, was far behind work in England, though in thoracoplasty and in X ray work the continent was ahead of us.—The President and Dr. Keating recommended trial of artificial pneumothorax in dispensary practice.

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[1] See The Lancet, 1923, i., 531.

Demonstrations of Clean Milk Production.—The British Dairy Farmers' Association, in conjunction with the Ministry of Agriculture and Fisheries, and the National Institute for Research in Dairying at Reading has made arrangements for demonstrations on the production of certified and Grade "A" (tuberculin tested) milk to be given at the Dairy Show to be held at the Agricultural Hall, Islington, London, N., from Oct. 23rd to the 26th.

THE LONDON MEDICAL EXHIBITION.

(Concluded from p. 855.)

In The Lancet of last week we enumerated the exhibits of drugs and foods at the London Medical Exhibition, Central Hall, Westminster, Oct. 1st to 5th. The following is an account of the surgical instruments and appliances, and scientific apparatus demonstrated by many well-known firms, and which are likely to be of interest or service to the medical world. To this we add a description of the various prepared milks and milk-foods shown, some notes on the merits of certain British spas represented at the exhibition, and we mention the chief medical publishers who showed many of their new and forthcoming publications.

It is safe to say that no medical man visited the exhibition without seeing something—in one or more of the many sections—which he carefully noted in his memorandum book as likely to be useful in practice. Recent improvements made in the larger exhibits, such as X ray installations, operating tables, &c., could not fail to stimulate interest even in those whose means excluded purchase, but among the many minor appliances embodying some new principle or modification the practitioner would readily pick out some useful piece of apparatus. The same might equally be said of the drugs and foods section; although the therapeutic action of any particular medicament is not demonstrable in five minutes at an exhibition stall, nevertheless the physician could satisfy himself conveniently as to the physical and æsthetic properties of any preparation.

Surgical Instruments.

Mayer and Phelps, Chiron House, 59–61, New Cavendish-street, London, W., in addition to a wide selection of instruments and apparatus for general and regional surgery, made particularly prominent the Reavell-Moseley electric rotary pump for pressure and suction. This is an ingenious and useful apparatus for many purposes, among them being the removal of blood and secretions from site of operations, saving much time in swabbing, the aspiration of the chest and abdomen, and the evacuation of cysts. This is a very silent running piece of apparatus, and is easily portable.—Down Bros., Ltd., St. Thomas's-street, London, S.E., among their wide range of surgical instruments of new and existing patterns made prominent the Ivan Magill new portable intratracheal apparatus, and drew special attention to a new form of self-locking guillotine.—Surgical Mfg. Co., Ltd., Mortimer-street, London, W., and Regent-street, Glasgow, in addition to their attractive exhibit of surgical instruments, operating tables, and various surgical appliances, drew special attention to their new form of "Barton" sphygmomanometer. They also make an instrument for consulting-room use, which is attractively fitted in an oak cabinet.—At the stall of Charles Hearson and Co., Ltd., 14, Princes-street, Hanover-square, London, W., were to be seen a large assortment of bacteriological, pathological, physiological, and botanical apparatus, as well as refrigerating plant suitable for laboratories. Two notable features were the bath for the preparation of "defatted" antigens of bacteria—diaplytes, to use the term suggested by Prof. G. Dreyer (vide The Lancet July 7th, p. 40), and an apparatus for crushing bacteria. The latter, the Thomson bacteria crusher, is made of stainless steel, so that disinfection of the apparatus may easily be carried out, and the knife revolves at from 1000 to 10,000 revolutions per minute. The cuts are made at the rate of 25,920,000 per minute. The bacteria suspended in solution to about 5 c.cm. in volume are totally crushed within 20 minutes and tests which have been made immediately on suitable media have proved negative after the usual period of incubation.—Fassett and Johnson, Ltd., 86, Clerkenwell-road, London, E.C., showed a wide selection of surgical plasters, medicated plasters, surgical dressings, gauzes, and ligatures, as well as dental requisites.—F. G. Ernst, 80–82, Charlotte-street, London, W., showed orthopædic appliances in great variety and made a special feature of ambulatory splints for use in cases of fracture and rheumatoid osteo-arthritis, and Lewis and Sons, 2, Westmoreland-street, New Cavendish-street, London, W., orthopædic appliances of many kinds and surgical instruments in variety. Particularly notable was their improved pattern of Thomas' calliper splint, which is moulded to conform with the tuberosity of the ischium.—Aurorascope Co., Ltd., 18–19, Fulwood House, Fulwood-place, London, W.C., exhibited an ingenious apparatus by which perfect illumination of the ear, throat, nose, mouth, and teeth can be obtained. The instrument can be used for transillumination of the antrum and in retinoscopy and is very portable.—T. Holland and Sons, 46, South Audley-street, London, W., exhibited a large assortment of foot supports, one of the newest being comprised of leather and sponge rubber, and boots for deformities, flat foot, and so forth, were also shown; Scholl Mfg. Co., 1–4, Giltspur-street, London, E.C., a great variety of arch supports and appliances for defects of the feet; and Babers, 309, Oxford-street, London, W. (and at Jersey), boots and shoes of various kinds for correcting deformities of the foot. An interesting novelty among plantar arch supports was shown by the John D. Miller's "Pneumatic" Foot Comforts, 71, New Bond-street, London, W. 1. The invention consists of an air cushion attached to a thin leather sole, and is soft, pliable and extremely light in weight. It has the very great advantage of being easily adjusted by the wearer by means of a clever little valve and pump (supplied to each purchaser of the supports), so as to retain throughout the period of the progressive correction of the arch of the foot, just that amount of support required. Another excellent point about it is that being so pliable, it readily adapts itself to every movement of the foot in walking.—H. E. Curtis and Son, Ltd., 8, Old Cavendish-street, W., had an attractive display of "Curtis" belts, supports and trusses, and elastic stockings, particularly noticeable being the colostomy support which is an adaptation of their original abdominal support for use in cases of active colostomies, affording a general abdominal uplift, a rigid and non-leaking joint at the seat of the opening, and an adjustment that provides ready access to, and removal of, the cup and its contents. The trusses, for all forms of abdominal hernia, proved to be particularly light in weight. A feature of this stall was Colonol, a medicinal liquid paraffin of Russian origin.—Domen Belts Co., Ltd., 456, Strand, London, W.C., showed belts for use in pregnancy, accouchement, umbilical hernia, floating kidney, and gastroptosis, as well as bandages, corsets, and back supports. The belts of this firm are based on physiological principles and received much attention from visitors.—A. G. Sheldon and Co., 59, Weymouth-street, London, W., called attention to a useful exhibit of sterilised surgical dressings and accouchement outfits in sealed packages, which may be obtained according to surgical requirements at any hour of the day or night. They also showed a breast binder and an antenatal binder which possess merit.

Kodak, Ltd., Kingsway, London, W.C., had a remarkable display of reduced negative and positive transparencies on Eastman Commercial and Process Film, and by comparison the value of the increased speed of the new Super-speed Dupli-Tized Films was easily demonstrated.—Messrs. C. Baker, 244, High Holborn, London, W.C., had a display of microscopes, and Ogilvy and Co., 18, Bloomsbury-square, London, W.C., showed microscopes of different kinds, blood-counting apparatus, optical lanterns, and optical appliances for research workers, and especially drew attention to a new electric microscope illuminating apparatus, the feature being an opalite electric bulb with iris diaphragm to suit any voltage.—Sterling Corporation (Great Britain), Ltd., 16, Wigmore-street, London, W., displayed a very efficient and portable high-frequency generator. Made in two styles, with a large selection of applicators, these outfits are ideal for the consulting-room.

X Rays, Ltd., 11, Torrington-place, Gower-street, London, W.C., among their many machines for the application of electricity to the treatment of disease and for diagnostic use, showed a new form of apparatus for treatment by high-tension electrical currents.—De Vilbiss Co., Ltd., West Drayton, Middlesex, nose and throat sprays and an electrical heater for keeping solutions warm in the consulting-room.—Tintometer, Ltd., Colour Laboratories, Salisbury, showed Lovibond's colour scale and Tintometer apparatus for registering the colours of substances, Dr. Dudley Corbett's Radiometer, and the improved form of Oliver's Hæmoglobinometer.—De Trey and Co., 23, Swallow-street, Piccadilly, London, W., exhibited their sterilisers and stainless hypodermic needles.—John Dowell and Sons, Ltd., Globe Works, Chatsworth-road, Clapton-park, E., showed an ingenious infant feeder of the "dummy" shape but designed to administer honey, dill-water, &c., in small quantities.

"Acousticon," Acousticon House, Hanover-street, London, W., showed electrical and non-electrical aids for the deaf; "Acoustique," 95, Wigmore-street, London, W., several kinds of aid for the deaf which have proved useful in suitable cases, and the Acoustique stethoscope, specially designed for doctors suffering from deafness. In this connexion may be mentioned an exhibit of the Marconi Wireless Telegraph Co., Marconi House, Strand, London, W.C., the Otophone, an instrument introducing the principle of the Marconi wireless receivers and intended for aiding the deaf in listening to lectures and concerts. It is also useful in suitable cases for medical men and business men, who are deaf, while seeing their patients and clients. An attachment called the Ossiphone conducts the sound through the bony structures, where such assistance in deafness is indicated.—Deaf Appliance Co., Ltd., 58–60, Wigmore-street, London, W., and Paris, demonstrated the use of many appliances for the deaf, both electrical and non-electrical, and W. H. Pettifor, 11, Victoria-street, London, S.W., showed some interesting electrical aids for the deaf.—Hawksley and Sons, 83, Wigmore-street, London, W., had an attractive exhibit of scientific physiological and acoustic instruments.

Gas Light and Coke Co., Horseferry-road, Westminster, S.W., demonstrated the many uses of gas as an illuminating and heating agent.—Hoskins, Sewell, Ltd., Birmingham and London, exhibited hospital beds, bedding, and equipment for sanatorium, maternity, and children's hospitals, and J. Nesbit Evans and Co., Wednesbury, Staffs, hospital and institution beds.

Milk and Milk Foods.

Ambrosia, Ltd., Brighton Chambers, Denman-street, London Bridge, S.E., with their pure Devonshire dried milk products for invalids, nursing mothers, infants, and convalescents, showed specimens of their cocoa and milk, milk chocolate, and milk rusks.—Glaxo, 56, Osnaburgh-street, London, N.W., exhibited Glaxo Standardised Full-cream Dried Milk containing added lactose and approximating closely the composition of average human milk. Glaxo Three-quarter and Half-cream Dried Milks are prepared to assist the medical man in cases where a lower fat percentage is indicated in cases of fat intolerance or for young and delicate children. They also showed a very interesting exhibit of plate cultivations of Glaxo, spray process dried milk, ordinary roller process dried milk, and cow's milk, illustrating the differences in bacterial purity. A series of transparencies showed cause and result of destruction of antiscorbutic vitamin in spray process dried milk, and absence of this in roller process dried milk.—Thew, Hooker, and Gilbey, Ltd., Buckingham, showed their Hooker's malted milk which contains neither starch nor cane sugar; it has previously been favourably reported upon by THE LANCET.—Horlick's Malted Milk Co., Slough, Bucks, had an attractive exhibit of their easily digested and nutritious diet for invalids and convalescents as well as for infants. It can be obtained in the form of tablets.—Prideaux's Pure Casein and Life Food Co., Ltd., 16, Southwark-street, London, S.E., showed milk foods, whey, and milk powders.—West Surrey Central Dairy Co., Ltd., Guildford, Surrey, gave demonstrations of the utility of Cow and Gate Milk Food, in which only the finest Grade A milk is used.—Trufood, Ltd., The Creameries, Wrenbury, Cheshire, and Lever House, Blackfriars, London, E.C., exhibited pure milk products including humanised Trufood, which closely approximates to breast milk for infants from birth to 4 months, Trufood for infants of 4 months and onwards, and Secway, a sweet whey powder.—Food Products, Ltd., 41, Queen Victoria-street, London, E.C., Bovo-Lactin, consisting of animal protein hæmoglobin, milk solids, and carbohydrates, was shown at this stall in the forms of Invalid Bovo-Lactin, Bovo-Lactin Essence, and Bovo-Lactin chocolate and gruel.—Mead Johnson and Co., 40–42, Lexington-street, London, W., displayed their dextri-maltose and other infant diet substances with instructive booklets for its use. The preparations are intended for prescription by medical men only and no feeding directions accompany the trade packages.—Food Education Society, 329, Vauxhall Bridge-road, S.W., showed a large selection of publications in connexion with food, cookery, and health reform.—Cadbury Bros., Bournville, Birmingham, displayed cocoa and chocolate, and Keen, Robinson and Co., Ltd. (incorporated with J. and J. Colman, Ltd., London and Norwich), preparations of mustard and prepared oats.

Spas.

The attractive and instructive exhibit of the British Spa Federation emphasised the fact that within the limits of climate and altitude British watering-places can successfully compete with foreign resorts, while at the same time possessing many distinct advantages. Bath, Harrogate, and Droitwich were included in this section, and the many photographs, booklets, and analytical tables testified to the enterprise of the organisers. The same remarks apply to Torquay, where special treatments are the seaweed baths indicated in muscular and articular rheumatism, and the Dartmoor peat baths and packs. Firms exhibiting natural and other mineral waters included Apollinaris Co., Ltd., 4, Stratford-place, London, W.; Hydrox, Ltd., Trafalgar House, 11, Waterloo-place, London, S.W.; and Ingram and Royle, Ltd., Belvedere-road, London, S.E.

Publishers.

Medical books were shown by Baillière, Tindall and Cox, Henrietta-street, Covent Garden, London, W.C.; William Heinemann (Medical Books), Ltd., 20, Bedford-street, London, W.C.; H. K. Lewis and Co., 140, Gower-street, London, W.C.; and by Stanley Phillips, 48, Brondesbury-road, London, N.W. Messrs. Minty, of Oxford and London, showed a selection of their book-cases.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

National Health Insurance Commission and Medical Certification.

THE National Health Insurance Commissioners have recently issued a circular letter to medical certifiers, in which it is stated that serious complaints have been received from Approved Societies as to the lax manner in which medical certification is being carried out by some certifiers; as the result of inquiries they are satisfied that these complaints are well grounded. This question was discussed at a recent meeting of the Advisory Committee appointed by the Commission under Section 58 of the National Insurance Act, 1911, and it has been decided to set up a Central Complaints Committee, composed of representatives of the medical profession and of approved societies, with a chairman appointed by the Commission from the members of the Advisory Committee. A summary of the facts against any certifier may be placed before the Central Complaints Committee for their observations before any further steps are taken. The types of complaints the Commission contemplate bringing before the Central Complaints Committee will include cases where a certifier: (i.) issues a certificate of incapacity for work in respect of an insured person without a corresponding medical examination; (ii.) improperly issues a certificate of incapacity for work to an insured person who is not in fact incapacitated; (iii.) issues on the same day in respect of a particular insured person a number of certificates of incapacity for work purporting to have been signed at weekly intervals. Every opportunity will be afforded to the certifier to meet the charge preferred against him. In cases where the Commission are not satisfied it will be open to them: (*a*) to refer the matter to the General Medical Council on a charge of infamous conduct in a professional respect, in accordance with the resolution of the Council dated November, 1911; or (*b*) to terminate forthwith his agreement with them as a certifier; or (*c*) to impose a monetary penalty upon him.

The Commission further draw attention to certain minor changes in the ordinary certificate, and state that they have authorised the issue of a special form of certificate for use in certain cases of prolonged illness.

Royal Academy of Medicine in Ireland.

The annual meeting of the Royal Academy of Medicine in Ireland was held on Oct. 12th, in the Royal College of Surgeons, Dublin, Sir Arthur Chance, President, being in the chair. The annual report stated that the Academy consisted of 173 Fellows, 7 Members, and 36 Student Associates, showing a decrease of four Fellows and one Member, and an increase of 16 Student Associates. Twenty-six sectional meetings were held during the session, with a gross attendance of 949, as compared with 887 in the previous session. Two successful joint meetings of the Sections of Medicine and Surgery were held. During the year Dr. Ernest Hastings Tweedy was admitted publicly to the honorary fellowship of the Academy, and Dr. Oskar Frankl, of Vienna, was admitted *in absentia*. On the same occasion an oration in honour of Louis Pasteur was delivered by Dr. W. R. Fearon. The report recorded with regret the death during the year of two Fellows—Dr. J. M. Finny and Dr. E. C. Hort.

At the election of officers the following were declared elected or re-elected:—President: Sir Arthur Chance. General Secretary and Treasurer: Dr. T. P. C. Kirkpatrick. Secretary for Foreign Correspondence: Dr. L. Cassidy. Presidents of Sections: Medicine, Dr. T. G. Moorhead; Surgery, Sir W. I. de C. Wheeler; Obstetrics, Dr. L. Cassidy; Pathology, Dr. J. T. Wigham; Anatomy and Physiology, Mr. A. A. McConnell; State Medicine, Dr. N. McI. Falkiner.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics for 1922 of four towns, the annual reports of which are commented on below:—

Name of town.	Estimated population (R.G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. from childbirth.
							Legit.	Illegit.	
Glasgow	1,037,800	27·3	17·2	1·5	1·2	4·4	116	181	7·0
Bradford	291,300	17·9	14·0	1·0	1·4	3·0	83	157	5·7
South Shields ..	122,400	26·6	13·8	1·7	1·0	3·5	92	145	5·5
Paisley	85,350	24·8	16·1	1·3	1·3	4·2	117*		4·7

* Undivided infant mortality rate.

Glasgow.

Dr. A. K. Chalmers reports an increase in comparison with the previous year of 2 in the death-rate and of 15 in the infant mortality rate, both largely due to the increased prevalence of influenza, measles, and diseases of the respiratory system. His tables show that both these rates were markedly higher in the four Scottish towns, Glasgow, Edinburgh, Dundee, and Aberdeen than in the four English towns, London, Liverpool, Manchester, and Birmingham. The average rate of the Scottish group for infant mortality was 113, compared with 88 for the English group. Dr. Chalmers compares the infant mortality rates in Scotland and England since 1860, and shows that during the nineteenth century the Scottish rate was much lower than the English, but that both rates showed no tendency to improve; and that in the twentieth century the English rate has improved much more rapidly than the Scottish, with the result that during the decade 1911–20 the English rate is for the first time lower than the Scottish. He suggests that there has been a greater reduction in England under the heading diarrhœal diseases. Table XXIII. shows the infant mortality rate in Glasgow from 1860 till 1922; it has behaved somewhat differently from both the English and Scottish rates. Thus during the last six decades, from 1863 to 1922, the infant mortality rate in Glasgow was 168, 152, 146, 147, 133, and 120. A chart is given, based on the weighings of a number of infants during each week of the first year of life, which indicates that the infants regularly attending the infant consultations are approximately 1 lb. below the standard curve throughout the year. There was difficulty in obtaining satisfactory charts for subsequent years but, so far as they went, such charts indicated that the average child brought to the centres was 2½ to 4 lb. below the standard for the second, 3 to 6 lb. below for the third, and 5 lb. below for the fourth year of life. During April the scheme for supplying meals to expectant and nursing mothers and children under 5 was discontinued gradually. The meals ceased altogether on June 10th, and milk only was supplied on the certificate of a medical officer for necessitous cases in regular attendance at a centre. At the end of the year, as the result of the reports of medical and nursing staffs, the supply of meals was resumed on the conditions governing the supply of milk. Dr. Chalmers gives particulars of the food value of the dinners supplied, in the hope that a standard may be reached for the organisation of adequate feeding in times of trade depression. A satisfactory feature of the V.D. scheme is the increase in the attendances per case. Dr. Chalmers remarks on the great preponderance of females among the cases of congenital syphilis. He also states that "each year the Women's Hospital and Baird-street Reception House treat many cases of very young female children suffering from gonorrhœa, the result of criminal assault," and refers to the appalling belief which exists that gonorrhœa may be cured in this way. It is obvious that the penalty provided by the law for this offence is utterly inadequate.

The portion of the report devoted to housing includes a special joint report by the town clerk and medical officer of health, which shows that the corporation have not sufficient control over sites which have been cleared in over-built areas. Plans are given, showing "hollow squares" in which houses used as dwellings have been condemned owing to congestion, and the position has been aggravated by the conversion of the shell of the dwelling-house into business premises of a greater height than the original dwelling-houses and encroaching still more by backward extension on the already scanty open space of the hollow square. Among the examples given of these new buildings which "obstruct" the remaining dwelling-houses in the square more than the original dwelling-houses did, are a six-story warehouse, picture palaces, and a corporation electricity department building.

The Glasgow Corporation are taking prompt steps to secure their share of the grant of £30,000 per annum offered by the Scottish Board of Health in August, 1922, towards the improvement of insanitary areas, and Dr. Chalmers gives particulars of two schemes which will involve the demolition of over 2000 houses and the erection of a similar number in their stead. The consideration of a memorandum on the Glasgow Common Lodging-houses for Women has led the corporation to adopt a new by-law that no girl under the age of 18 shall be admitted to a common lodging-house unless she is to reside there with her mother. Steps are being taken in various ways towards smoke abatement, by the prosecution of owners and drivers of steam wagons, by the use of coke instead of coal for tar-melting, by central heating and the use of up-to-date appliances. Classes are held for the instruction of firemen and others. A chart is given in the report, showing a pictorial representation of the average soot deposit on each square foot of the city area during 1917 and 1922 respectively. The total year's deposit in the city area was 11,608 tons for 1917 and 7224 tons for 1922, but whether the improvement is due to better methods or not can only be determined when more normal industrial conditions return.

Bradford.

The Bradford report makes good reading because it shows that every problem of public health and school administration is being attacked with energy and thoroughness. There are still some sanitary arrears to be caught up, for there are 7609 privies, but 1501 of these were converted to water closets in 1922. There were 22 smoke prosecutions, only one of which was dismissed. Dr. John J. Buchan reports that most of the steam raised is used for process work and there is great fluctuation in the steam requirements in the dyeing and wool-combing industries, so that, the draught arrangements being frequently designed to meet average loads, there is often deficiency of draught and consequent smoke at periods of maximum firing. Experience has shown, too, that there is often as much smoke with modern as with old-fashioned plants, owing to working with too thick fires and mechanically restricted draught, in efforts to obtain greater evaporation and furnace efficiency. There is a tendency also to adopt intermittent heavy firing, by which means the stoker alternates longer periods of hard work and rest. The tuberculosis rate was the lowest ever recorded, and Dr. Buchan shows that the English and Bradford curves during the last ten years have been similar except that the Bradford rise was higher during the war years. A special report made in April, 1923, on "Tuberculosis in insured persons accepted for treatment by the city of Bradford Health Committee" is quoted to show that, provided the disease is diagnosed in the early stages, the outlook for the patients is quite hopeful even when they return to work in the industrial town in which they contracted the disease. Dr. Buchan shows that the Bradford death-rate from cancer has exceeded the English rate during the last ten years, and that the excess has chiefly been in cancer of the upper part of the alimentary tract (excluding the mouth) in males and females, and in cancer of the uterus.

The infant mortality rate showed a remarkable fall in 1922, while the neo-natal rate has displayed a distinct tendency to fall in recent years. A table is given which shows that the fall in infant mortality since 1896 has been quite pronounced even when diarrhœal diseases have been excluded. Thus the average annual infant mortality rate, excluding diarrhœal diseases, for 1913–22 was 104, for 1903–12 was 115, and for 1896–1902 was 142. Midwives attended two-thirds of the births in 1922 and of these births nearly half were attended by the 11 municipal midwives. When an expectant mother is attended by a non-municipal midwife, ante-natal visits are paid by the health visitors and 504 expectant mothers were so visited in 1922. The municipal midwives paid ante-natal visits to the 1614 cases attended by them, so that rather more than 40 per cent. of all the expectant mothers were under ante-natal supervision by these two methods. The available accommodation for maternity cases in Bradford is 20 beds at the Municipal Maternity Hospital, 40 beds at the Municipal General Hospital, and about 6 at St. Monica's Home which is run by a voluntary agency. Many very serious cases of overcrowding came to light during the year but little could be done owing to house shortage. On June 30th, 1923, the applicants for new houses numbered 7046, of whom 4721 were ex-Service men and of these 3434 lived in apartments. The new houses erected during 1922 numbered 466, including 428 municipal houses. The number of back-to-back houses in Bradford is 40,553, of which 31,792 are built in blocks of four and eight.

The school report shows that 171 cases of ringworm of the head received X ray treatment and that the average period between treatment and re-admission to school was 21 days. As in former years there was no case of recurrence or where there was not full re-growth of hair after treatment. The school dentist, Mr. B. North, reports that 27,127 children, including 1256 in the secondary schools, were inspected and 75 per cent. required some treatment, a gratifying reduction as compared with former years. Mr. North has had much experience of the teeth of children in an area supplied with hard water and is of opinion that the soft water of Bradford is not bad for the teeth. Appointments with the dentist have been well kept, except on Saturdays, indicating the influence of the teachers in this direction. Most of the spectacles needed are provided by the Education Committee. During 1922, 1099 spectacles were supplied. In 966 cases the parents paid the full cost, in 56 cases the cost was remitted after inquiry into the family circumstances, and the remaining 77 pairs of spectacles formed part of the treatment provided at the myope school. The camp schools were not reopened during the summer of 1922. The open-air school at Buckwood, which was opened in 1908, has been extended twice and now has accommodation for 190. Three meals a day are provided and the children are taken to and from school by special tram-cars. The site covers 5 acres and there is free access to about 5 acres of woodland in addition. The usual tables show that every effort is made to provide such education as is possible for all the "exceptional" children in the Bradford area.

South Shields.

Speaking of the high death-rate from tuberculosis, Dr. W. Campbell Lyons says: "So long as the appalling overcrowding due to the lamentable shortage of houses continues, so long will there be a high incidence of tuberculosis." Influenza and pneumonia were prevalent in the early months of the year, and Dr. Lyons thinks the high incidence of acute pulmonary diseases was increased by overcrowding of the houses and lowered resistance owing to unemployment and consequent malnutrition. The number of beds at the Cleadon Park Sanatorium, which was opened in 1921, has been increased to 29. Owing to wretched home conditions and the want of other accommodation for advanced cases, beds have had to be given up to cases for whom no permanent benefit could be expected, to the detriment of cases in a more hopeful stage. The average length of stay in the sanatorium was 115 days. Dr. Lyons points out that the increase in maternal mortality from childbirth is not surprising considering the home conditions, and that a maternity hospital is imperatively needed in the borough.

In the school report the inadequate accommodation at the school clinic is again referred to. Premises were purchased for an open-air school in 1920 but have not yet been adapted for the purpose owing to the economic situation. At the end of the year it was decided to convert 1000 privies into water closets, partly for the relief of unemployment, and Dr. Lyons hopes that once the good work is begun it will go on till all the evils connected with the present system are dealt with and the back streets cease to be breeding places of disease. At the end of the year 353 houses were occupied on the council's housing estate at Cleadon Park and 241 were under construction. During 1922 private enterprise contributed 14 self-contained houses and four houses of flats.

Paisley.

Dr. G. V. T. McMichael reports, as the outstanding event of the year, the generous offer of Miss Russell, of Muirfield, Paisley, to erect and equip a central medical institute for the mothers and children of the town. Two other features of the year's work were the opening in October of the municipal venereal diseases clinic and the decision of the local authority, with the approval of the Scottish Board of Health, to make all forms of pneumonia compulsorily notifiable. In view of present housing conditions, Dr. McMichael is a keen advocate for hospital treatment of pneumonia, and he hopes that the extension of notification will allow more effective treatment to be provided for those fatal types of pneumonia which complicate measles and whooping-cough. Both the general death-rate and the infant mortality rate are the highest recorded for several years, and Dr. McMichael points out that this is due to the increased prevalence of influenza, measles, whooping-cough, and diseases of the respiratory system. No case of pneumonia was refused hospital treatment last year. In commenting on the difference between the death-rates of the larger Scottish burghs and the county districts for 1922—viz., 16·3 and 12·9 respectively, Dr. McMichael expresses the opinion that smoke pollution and the present deplorable housing conditions are the only factors which can explain the difference. In this connexion the following table, given in the report and showing the percentage of the population of the six largest Scottish towns living in houses of from one to three rooms, speaks for itself:—

Town.	One room.	Two rooms.	Three rooms.
Glasgow	12·8	49·8	20·0
Edinburgh	4·7	32·9	22·5
Dundee	8·9	50·8	20·9
Aberdeen	4·4	32·6	31·5
Paisley	12·3	52·3	20·2
Greenock	10·3	48·0	21·1

In another part of the report we read that of the 2118 births, 560 took place in one-roomed houses. Dr. McMichael regrets the decision of the Board of Health to discontinue the 50 per cent. Exchequer grant towards the treatment of measles and whooping-cough in children under 5 years of age, as he considers that expenditure in building up children after such illnesses is far more profitable than the provision of the costlier sanatorium treatment for tuberculosis, which he describes as often futile. Reference is made to the high maternal mortality from childbirth in Scotland—viz., 6·4 in 1921 and 6·6 in 1922, and the high proportion of 96 still-births to 2118 live births in Paisley in 1922. With regard to the latter a careful investigation was made and it was found that the probable cause of 22 of the 96 still-births was "contracted pelvis, followed by instrumental delivery." Dr. McMichael looks to the development of ante-natal treatment as the remedy for this high puerperal mortality and morbidity, for the investigation of which the Scottish Board of Health have recently appointed a departmental committee.

The question of the purification of the River Cart, postponed because of the war, has been taken up again and a small experimental plant is to be laid down for testing the efficacy of the "bio-aeration" method for dealing with the Paisley sewage.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral Joseph Chambers, the new Director-General of the Medical Department of the Royal Navy, is promoted to Surg. Vice-Admiral.

Surg. Comdr. J. C. G. Reed is placed on Ret. List with rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

Maj. T. J. Wright retires on ret. pay and is granted the rank of Lt.-Col.

Temp. Maj. W. E. Home relinquishes his commn. and retains the rank of Maj.

The undermentioned Capts. retire, receiving a gratuity: W. J. A. Laird (granted the rank of Maj.) and G. H. Wood.

Temp. Capt. J. S. Wilson relinquishes his commn. and retains the rank of Capt.

ARMY RESERVE OF OFFICERS.

Lt.-Col. E. C. Hayes, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

Capt. H. E. S. Stiven, late temp. Capt. R.A.M.C., to be Capt.

ARMY DENTAL CORPS.

Capt. H. J. Pegler, late Spec. List, to be Capt.

TERRITORIAL ARMY.

Majs. A. G. Lovett-Campbell and H. L. Gregory, having attained the age limit, are retd. and retain the rank of Maj., with permission to wear the prescribed uniform.

General Hospitals: Lt.-Col. G. S. A. Ranking, having attained the age limit, is retd. and retains the rank of Lt.-Col. Capt. W. J. S. Bythell (late R.A.M.C., T.F.) to be Capt.

Supernumerary for service with O.T.C.: Lt. E. J. T. Thompson resigns his commn. and retains the rank of Lt.

TERRITORIAL DECORATIONS.

The King has conferred the Territorial Decoration upon Col. P. B. Giles (ret.), Lt.-Col. F. Darlow, and Majs. H. Henry and J. E. N. Ryan.

ROYAL AIR FORCE.

J. S. Wilson is granted a short service commission as a Flight Lt.

INDIAN MEDICAL SERVICE.

Major T. F. Owens to be Lt.-Col.

UNITED STATES PUBLIC HEALTH SERVICE.—The third general interchange of health officers arranged by the health section of the League of Nations is now taking place in the United States. Representatives from France, England, Italy, Russia, Poland, Spain, Holland, Belgium, Greece, Jugo-Slavia, Germany, Switzerland, Norway, Mexico, San Salvador, Brazil, Chile, and Canada, delegated by their respective governments to participate in a course of study and observation, arrived in America the first week in September and will remain for approximately three months. Until Sept. 22nd the delegates remained in Washington, studying national health organisation as administered by the United States Public Health Service. The delegation then separated into three groups, one going to Virginia, another to North Carolina, and a third to Alabama, to study State and local health departments. Later the groups will study health administration in Boston, New York, and Philadelphia, and will probably reassemble in Washington late in November for a final conference.

Correspondence.

"Audi alteram partem."

CENTENARY OF THE LANCET:

CONGRATULATORY MESSAGES.

To the Editor of THE LANCET.

SIR,—I have spent most of my spare time this week in reading, with unwearied interest, the fascinating story of THE LANCET and its hundred years. As a past editor of the *Dublin Journal of Medical Science* for 47 years, may I claim the privilege of associating myself with the many members of the medical profession who have offered you their congratulations in connexion with the Centenary of the famous journal, which has done so much to mould medical opinion, and to advance both curative and preventive medicine throughout the world. For that journal and for you, its Editor, I wish prosperity and ever-growing influence *ad multos annos!*

I am, Sir, yours faithfully,

JOHN W. MOORE, M.D.,
Senior Physician, Meath Hospital and
Co. Dublin Infirmary.

To the Editor of THE LANCET.

SIR,—You have received so many congratulatory letters on the completion of the Centenary of THE LANCET from distinguished members of the profession that a belated one from myself can hardly be expected to add to your gratification.

THE LANCET has had a truly wonderful record, and, apart altogether from the splendid work it has done in disseminating medical knowledge throughout the profession, its pages furnish the best record which we possess of the history of British medicine during the last hundred years. May I congratulate you upon the Centenary Number? What a treasure it will be to all lovers of medical history! Personally I shall regard it as one of the most interesting books in my library. I used to possess one volume which I valued above all others, and that was the first volume of THE LANCET. Like myself, my father and my grandfather, who were both country practitioners, took THE LANCET regularly, and I inherited the first ten volumes from the latter. But, alas! I lent the *first* volume to a friend—I don't remember who—some ten or more years ago; unfortunately he omitted to return it, and I have no doubt by this time he has orgotten who lent it to him. On the fly-leaf is a crest representing a wolf's head with the initials T. S. underneath.

With best wishes for THE LANCET's continued usefulness and prosperity,

I am, Sir, yours faithfully,

HAROLD J. STILES,
Regius Professor of Clinical Surgery,
University of Edinburgh.

DOUBLE SCHOOL VACCINATION.

To the Editor of THE LANCET.

SIR,—In your leading article last week you note he rise in number of cases of small-pox from 7 in 917 to 1225 in the first half of 1923, and discuss the best means of preventing and controlling this disease. The prevalence of small-pox during the last three years has drawn public attention to the chaotic ondition of our vaccination laws, and to the large perentage of unvaccinated people. The number of cases of small-pox has been increasing in every year, save one, since 1917. Cases have been notified for the first time actually in no less than 12 counties since June 1st. The majority of this year's cases have occurred in he epidemic at Gloucester. It has been stated that these cases are mild ones, and even that they are not genuine small-pox. Anyone who saw the photograph in THE LANCET (July 21st, 1923, p. 132) could not doubt that they were true to type, and the photograph gave a convincing proof also of the efficacy of vaccination. Granted that the cases of small-pox in the Gloucester epidemic were mild, this only emphasises the necessity of insisting upon general vaccination. How often has one seen a mere blush of a rash in one child cause a fatal malignant scarlet fever in a contact. Compulsory notification of chicken-pox in times of small-pox prevalence, and in fact at normal times, is good, but it will be as ineffectual as the control of measles by notification if no action is taken. A routine procedure with chicken-pox notification, introduced by Dr. Joseph Priestley, M.O.H., Lambeth, S.W., is to offer vaccination to all cases and contacts, thus ensuring protection in the event of mistaken diagnosis. The use of carbolic oil during the scaling off of the pustules is another helpful measure. In 1922 there were 780,000 births in England and Wales, and 357,920 declarations of conscientious objection to vaccination. This is an appalling figure, and in some respects is not to be wondered at when it is known that even amongst medical men there is doubt, if not as to the efficacy of vaccination, then certainly as to the advisability of infant vaccination.

It is difficult to understand how medical men can be sceptical of the value of vaccination. Three cases recently reported from the Doncaster district under Dr. Arthur Briggs Dunne, the medical officer of health, are very convincing:—

> 1. In one house where a case occurred there were 10 unvaccinated contacts, eight being children, and nine of these were vaccinated after the case went to hospital; one of the children, the youngest, remaining unvaccinated. This child was the only one to contract the disease.
>
> 2. In another house two families were living in an overcrowded condition, and a case of small-pox occurred. Every member of this household was vaccinated within one hour of the patient being removed. Despite the overcrowding no other case occurred.
>
> 3. On the other hand, in a house containing eight contacts of a patient where vaccination was refused, five cases occurred, one after the other, until at last the father consented to have the remaining two children vaccinated.

The number of vaccinated persons varies considerably throughout the country. The percentage of children vaccinated in the following cities, for instance, is: Liverpool, 75; Manchester, 50; Sheffield, 43; and Leicester, 5. Dr. Killick Millard, the medical officer of health for Leicester, does not, I understand, recommend the routine compulsory vaccination of infants, but allows that general vaccination should be adopted in the event of the appearance of small-pox in a district. The figures seem to indicate in a striking manner the influence of the policy of the chief administrator in the public health service of any city or area. The trend of opinion, medical and lay, seems to be against infant vaccination. A resolution asking the Government to repeal the conscientious objection clause of the Vaccination Act was defeated recently by 14 votes to 11 at Hackney, London, E., Board of Guardians. There is no question that the inoculation of an infant with calf lymph does in many instances seriously disturb its metabolism. Popular objections are based on the undoubted suffering and illness, sometimes fatal, resulting from infant vaccination.

I consider that a compromise between the extreme pro- and anti-vaccinationists can be found in school vaccination. Probably the rigid old vaccination laws have done harm, but such harm is reparable. Anathematising by doctors of all people who will not submit their infants to vaccination can have but one result—namely, to make them more obstinate. Thus the scientific treatment of diseases like diphtheria and whooping-cough does suffer. The secret of the success of the public health service is a policy of educative tact and persuasion; thus and only thus can school vaccination and infant vaccination likewise be successful.

I submit that :—

(1) Every child should be vaccinated during its first and last years of school life, normally at ages 5 and 14.

(2) This work should be done by the school medical inspectors and nurses. The clinics and organisation are ready now for the emergency. An order from the Ministry of Health would set efficient machinery working quietly throughout the country.

A school medical inspector responsible for, say, 8000 children in 60 schools in an urban area, and proportionately more or less in a borough or county area, could vaccinate all the children twice in their school life. The risk of the probably unprotected three to five years of a child's life is compensated for by the mere thorough double school vaccination, and the absence of the possibility of injuring the health of the child by infant vaccination. The demand for school vaccination is making itself evident. During 1922, 25,313 children were vaccinated in the London County Council schools with the consent of their parents. I understand that the Oxfordshire Education Committee has recommended the Board of Education to consider steps to make vaccination obligatory upon all children to be admitted to or in attendance at a public elementary school or aided secondary school. Worcestershire and Derbyshire County Councils (*Public Health*, August, 1923) have made similar representations to the Ministry of Health. Mr. Neville Chamberlain, the late Minister of Health, said in Parliament that the responsibility for the administration of the Vaccination Act rested with the boards of guardians and their vaccination officers. He was not satisfied that the Act was being properly administered in all districts, and he was considering what steps could be taken to secure an improvement in that respect.

There has long been a feeling that vaccination could be more efficiently administered by its transfer from the Poor-law to the Public Health Medical Service. There have been 92 deaths from small-pox in Great Britain in the five years 1918–1922, and 48,107 in the period 1868–1872. There is no question that improved sanitation has had much to do with this reduction. That is all the greater reason why public health officials' hands should be strengthened. Sanitation cannot conquer an epidemic once it is raging. A step towards efficiency would be double school vaccination. There need be no more compulsion about it than there is in the present popular medical inspection and treatment of school children. It is gratifying that such a world-wide authority on vaccination as Dr. McVail should take the broad-minded view he does regarding the sincere objector to vaccination. Education in hygiene makes compulsion a thing of the past.—I am, Sir, yours faithfully,

S. NICOL GALBRAITH, M.B., D.P.H.

Tonbridge, Kent, Oct. 15th, 1923.

CONGENITAL MIOSIS.

To the Editor of THE LANCET.

SIR,—Concerning the three cases of congenital miosis published in my article Congenital Miosis or Pinhole Pupils Owing to Developmental Faults of the Dilator Muscle,[1] I see the following phrase in THE LANCET (Sept. 22nd, 1923, p. 614): "The anatomical explanation of the condition was pronounced to be the defective development of the dilator muscular fibres of the iris. As to this it might be objected that the dilator muscle of the iris is normally so slight in development that for many years its existence was doubted."

This doubt might be justified before the good technical methods for depigmentation of the iridial pigmentum epithelium were introduced by Alfieri in 1898; later came the hydrogenium dioxyd method. To-day anatomists would not agree with the quoted passage, finding the dilator muscle well developed from the pupillary margin to the ciliary border. This was the experience of my collaborator, O. Berner, examining the iris in 12 normal persons of different ages between 17 and 65. Only in some small spots—few and far between—the front epithelium cells are not transformed into muscular cells (v. Szily). In our two cases of congenital miosis, anatomically examined, the dilator did not exist in the periphery of the iris and was nearly absent in the intermediary part in one of them; in other words, the dilator had no peripheral anchorage. Thus the congenital miosis is well explained; the sphincter pupillæ had no functional antagonist. I tried in vain to detect a certain case of congenital miosis in the pedigree. The father was the only possible exception, but he did not allow the application of mydriatics (homatropin), which is necessary for a sure diagnosis The father's pupils were not 2·5 mm. in diameter, but "between 1·5 and 2 mm.," as I wrote in my article. Congenital pinhole pupils have been mistaken for spinal miosis. In the latter condition the pupil is seldom less than 2 mm. in diameter; in the former, as a rule, between 0·5 and 1 mm.

I am, Sir, yours faithfully,

Christiania, Norway, Oct. 8th, 1923. S. HOLTH.

THE DIATHERMY TREATMENT OF GONORRHŒA IN WOMEN.

To the Editor of THE LANCET.

SIR,—It is very pleasing to find that others are working at the treatment of gonorrhœal infections by using diathermy currents.

It is noticeable that the methods employed by Drs. Milner and Maclachlan differ from those we have used (see THE LANCET, Sept. 29th, 1923, p. 652). As a comparison of methods and results is likely to lead to improvement of technique this is advantageous. At St. Bartholomew's Hospital the treatment of gonorrhœa by diathermy currents has been carried on continuously since 1919, when it was recommenced after a lapse of time due to the war. It is a continuation of the work done by Dr. E. P. Cumberbatch from 1912 to 1914. A notice appears in his book on Diathermy, published in 1921, of what had up to that time been done. An account of technique and result was put before the Royal Society of Medicine by me in January, 1922.

There is one comment I should like to make if I may be allowed to do so. Our methods differ fundamentally in one particular—viz., in the means adopted to arrive at the dosage of current for the cervix. The authors of the article referred to state that "no diathermy electrode should be introduced into the urethra on any account." It is impossible to work with reliance on the readings of thermometers, although we have used special thermometer-electrodes to check results in regard to the temperatures obtained. The cervix being insensitive, how, then, are we to obtain the required dosage for it? During the last four years it has been my custom to introduce into the female urethra a metal electrode and by this means to apply the diathermy current. I have never known a burn of the urethra to occur. It is hardly to be conceived that without an anæsthetic a patient would allow a sufficient temperature to be reached to cause a burn. The sensation of heat changes to one of pain at about 115° F., but this is a long way from the temperature required to cause coagulation or even enough damage to blister. The urethra is no more liable to damage from heat than other structures. It is, in fact, less liable to be damaged than the skin on account of its smaller resistance. I have always used the female urethra to provide the index of the amount of current required for the treatment of the insensitive cervix. Thus in the urethra if 1 ampère is required to reach the point where the sensation of heat changes to one of pain, that is to say, just short of 115° F. with $1\frac{1}{2}$ in. of sound introduced, ·5 ampère passed through $\frac{3}{4}$ in. introduced into the cervix produces the same temperature. This I have found many times to be correct.

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[1] British Journal of Ophthalmology, September, 1923, pp. 401–419.

If, as sometimes happens, 2 or 3 in. of electrode pass through the cervix into the uterus a corresponding amount of current must be passed.

To record the temperature in the cervix a special thermometer-electrode must be used. It cannot be done by stopping the treatment and then taking the temperature, as the loss of heat is too rapid. In the early days we had some slight burns but no harm has ever resulted. A burn of the cervix is no reason for stopping the treatment if care is taken not to superadd the effects of another burn.

We have been very interested in Drs. Milner and Maclachlan's results and are gratified that their results go to confirm our own.

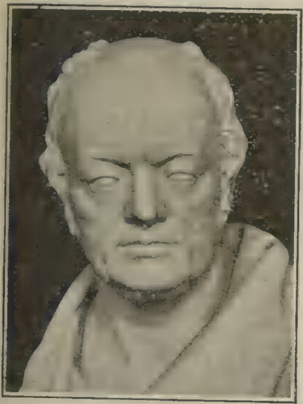
I am, Sir, yours faithfully,

Oct. 10th, 1923. C. A. ROBINSON.

AN UNIDENTIFIED PORTRAIT BUST.

To the Editor of THE LANCET.

SIR,—The accompanying photograph is of a bust in the museum of the Middlesex Hospital Medical School. We have made great efforts to find out who the bust represents, but we have never been able to do so. Possibly some reader of THE LANCET might be able to help us in identification. It has probably been in the medical school about 80 years. Inscribed on the back of the bust is the following:—



"Joseph Deare, Sculpt.,
Published 1832,
London."

I am, Sir, yours faithfully,

A. E. WEBB-JOHNSON,

Dean of the Middlesex Hospital Medical School.

Oct. 13th, 1923.

HEARTBURN.

To the Editor of THE LANCET.

SIR,—Although physiological experiment and accessory clinical methods have done much to advance our understanding of symptoms and their mode of production, there are still many subjective manifestations of ill-health for which no adequate explanation is forthcoming, and of which the treatment in consequence remains unsatisfactory. "Heartburn" is such a symptom. Probably most people experience it at some time in their lives; with others it is a frequent and distressing complaint. Apparently it may occur either in the presence or absence of an organic lesion; it may occur with or without other digestive symptoms; it may accompany the physiological disturbances of pregnancy in women who are never troubled with it at other times; radiography and chemical methods have failed to throw any conclusive light upon it; it is met with, I believe, in persons with achlorhydria as well as in persons with hyperchlorhydria; alkalies give relief, but this does not necessarily signify that abnormal acidity is a factor; it cannot be produced with solutions of hydrochloric acid; whether the organic acids found in the stomach can produce it I do not yet know; it is even disputed whether it expresses a mechanical or a chemical irregularity; and finally there is no absolute agreement as to what he symptom is, different persons employing the term o describe different sensations, or confusing "heartburn" with other gastro-œsophageal discomforts. "Acidity" and "cardialgia" are used as alternative descriptions. "Pyrosis," however, which should be synonymous, is employed to describe "water-brash," an entirely different phenomenon.

Obviously before we pursue its causes further we require more clinical information about the symptom itself, and the circumstances connected with it. In perusing Galton's "Enquiries into Human Faculty" recently, I was much struck by the interesting and sometimes valuable information which the author obtained in regard to certain mental phenomena by the process of circulating his inquiries to men and women of intelligence in scientific circles and to others likely to prove reliable observers. It occurred to me that it might be possible to accumulate useful information in regard to some of the commoner subjective symptoms by similarly circularising to medical men a questionnaire, to which those with personal experience might themselves provide the answers, while others gleaned them from their more intelligent and trustworthy patients.

If such a method should appeal to any readers of THE LANCET I would suggest that an attempt to secure answers to the appended questions be made, and would ask for the information to be forwarded to me at Guy's Hospital. Replies would, of course, be fully acknowledged, and names and addresses treated confidentially. A favourable response might serve not only to direct and stimulate further inquiry of an experimental kind, but also to pave the way for similar inquiries into allied problems of symptomatology. In addition, it would afford to colleagues in general practice an opportunity of coöperating in a piece of practical clinical research for which their observations would provide the basic material.

Questions Relating to "Heartburn."

1. What is the nature or character of the symptom?
2. How long have you been familiar with it?
3. At what vertical level or levels is it experienced?
4. At what depth from the body surface and over what surface area does it seem to be felt?
5. What is the maximum, minimum, and mean duration of the symptom?
6. What factors, if any, seem to initiate or aggravate the symptom?
7. Under what natural conditions does relief occur?
8. What artificial measures (e.g., drugs, &c.) bring relief?
9. What is the momentary effect on the symptom of swallowing: (*a*) Nothing; (*b*) hot fluids; (*c*) cold fluids; and (*d*) solids?
10. What associated symptoms have you noticed (e.g., flatulence, nausea, vomiting, salivation, gastric pain, regurgitation of food, bile, acid or bitter juice)?
11. Has a diagnosis of any organic disease ever been made or suggested in your case, and if so, on what evidence?
12. Have you been investigated by X rays with the opaque meal or by a test-meal, and if so, with what result?

I enclose my card, and am, Sir,

Yours faithfully,

SECRETARY OF THE HEARTBURN INVESTIGATION COMMITTEE, GUY'S HOSPITAL.

Oct. 9th, 1923.

INTESTINAL DISINFECTION.

To the Editor of THE LANCET.

SIR,—My attention has been called to the following statement made by Prof. Dixon of Cambridge, before the Pharmaceutical Society, as published in THE LANCET of Oct. 13th (p. 846): "Disinfectants have so far been ineffectual to diminish materially the intestinal flora—they poison the body before the bacteria." THE LANCET, in a laboratory report on April 9th, 1921, stated the claims of dimol, adding: "It is possible to destroy all bacteria in the fluid contents of the intestinal tract with a duodenal douche of dimol." If Prof. Dixon would care to have particulars of the method by which these results are obtained, he will find them in a brochure entitled "Colonic and Duodenal Lavage, with a Suggested Improvement in the Plombières Treatment" (London: H. K. Lewis and Co., Ltd.).

I am, Sir, yours faithfully,

J. T. AINSLIE WALKER.

Ludgate-hill, London, Oct. 13th, 1923.

Obituary.

SIR WILLIAM RICE EDWARDS, K.C.B., K.C.I.E., C.M.G., M.D. DURH., HON. F.R.C.S. EDIN., M.R.C.S. ENG.,

LATE DIRECTOR-GENERAL, I.M.S.

Major-General Sir William Rice Edwards, who retired from the Director-Generalship of the I.M.S. only a few weeks ago, died in London on Oct. 13th from pneumonia at the age of 61. He was the son of the late Canon H. P. Edwards, of Llandaff, and received his early education at Magdalen College School and Clifton. After studying medicine at the London Hospital, he obtained the M.R.C.S. Eng. in 1884 and graduated M.B. with honours at Durham University in the same year, proceeding to the M.D. degree two years later, when he entered the Indian Medical Service. He served on Lord Roberts's staff for four years and afterwards was surgeon to the Eden Hospital, Calcutta, and civil surgeon at Quetta, but during the South African War he rejoined Lord Roberts's staff as surgeon at headquarters. For his services he was mentioned in despatches, awarded the C.M.G., and received the Queen's medal with five clasps. In 1901 he was appointed superintending surgeon of the Kashmir State Hospitals, a post which he held for some ten years, and became subsequently chief medical officer of the North-West Provinces and Surgeon-General of Bengal. In 1917 Sir William Rice Edwards was appointed honorary surgeon to the King, and in the following year became Director-General of the Indian Medical Service. He received the K.C.I.E. in 1921. As a member of the Council of State of India, as a soldier, and as a doctor he was held in high esteem, for he was a careful and efficient administrator. His death at a comparatively early age is also a loss to international medicine, for on his retirement from the Director-Generalship of the Indian Medical Service he was appointed representative of the Government of India on the Permanent Committee of the International Bureau of Public Health.

MICHAEL THOMAS SADLER, M.D. LOND.

A DISTINGUISHED physician of an older generation has passed away in Dr. Michael Thomas Sadler, who died at Rugby on Oct. 11th in his ninetieth year. Dr. Sadler had practised medicine in Barnsley, Yorks, for 44 years. Born in 1834, he received his early education at Wesley College, Sheffield, and in 1853 graduated B.A. at London University. Four years later he passed his M.B. with honours, and in 1861 he obtained his M.D. London. His medical studies were pursued at Edinburgh University and at St. Bartholomew's Hospital, and he was a pupil at Barnsley of his own father, to whom Sir Thomas Spencer Wells was apprenticed. For many years he held the post of medical officer of health for the borough of Barnsley and the surrounding district. He held an appointment on the staff of the Beckett Hospital as physician, and had an extensive consulting practice in the West Riding. During his years of practice in Yorkshire he was a patient advocate of improvements in secondary education, and was deeply interested in public hygiene. After his retirement he gave much of his leisure to the work of the Charity Organisation Society. In 1860 he married Annie Eliza, daughter of John Adams, of Torrington, Lincolnshire. His great-uncle was Michael Thomas Sadler, of Leeds, Member of Parliament for Newark, social reformer and political economist.

In appreciation of Dr. Sadler, Dr. A. Maude writes:—

I was house physician at Barnsley to Dr. Sadler in 1885, and 40 years have not changed my opinion that he was one of the best physicians I ever worked under, or with. He was not merely a sound and careful practitioner, of large experience, but he was a great scholar of medicine. I had come to him fresh from two house physicians' posts and one house surgeon's, at hospitals in London, and Sadler taught me more medicine than any of my previous chiefs. Widely read as he was in French and German, as well as English, he was avid of new information. He would come to me in the morning and ask me to prepare by night a summary of all the literature I could find on some point bearing on some case in his private practice; and as we had a good library at the hospital, as well as his own collection of books, the task was exacting. But his digest of the material furnished was so illuminating that the labour was most profitable. Dr. Sadler also acted as gynæcologist to the hospital and was an admirable operator, taking great pains to adapt his technique to the changes required for aseptic work. I well remember his first ovariotomy at which I assisted, a case full of operative difficulties, which he met with minute care. He was a man of wide and careful reading in general letters, history, and philosophy, assiduous, within the limits of his leisure, on foreign travel, and his house was a valued centre of culture and hospitality.

Dr. Sadler leaves two sons and three daughters. His eldest son is Sir Michael Sadler, Master of University College, Oxford, and his second son Dr. F. J. Sadler, who carries on the family practice at Barnsley.

Medical News.

UNIVERSITY OF OXFORD.—The degree days in the present term are the following: Nov. 1st, 17th, and 29th, and Dec. 15th.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

SECOND EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.

Part III., Pharmacology and General Pathology.—G. M. Addison, B. W. Alexander, H. M. Anstey, D. Aserman, G. H. Barendt, G. J. O. Bridgeman, C. F. Brockington, H. J. Burrows, R. D. W. Butler, J. W. D. Buttery, G. P. Chandler, R. Childs, A. C. Copley, A. T. Curnow, R. D. Curran, K. E. D. Dauncey, R. K. Debenham, H. V. Dicks, J. V. Dockray, A. G. Eddison, M. Escovar, E. S. Evans, M. G. Fitzgerald, L. Foulds, T. D. W. Fryer, R. Gallimore, S. E. Gawthrop, M. J. Harker, J. A. Hartley, A. S. Hollins, G. G. Holmes, W. G. S. Hopkirk, F. S. Hubbersty, I. A. Jackson, L. R. Janes, A. J. Johnson, C. E. Kellett, L. C. Lancaster, A. H. Lankester, D. F. Lawson, E. W. Lindeck, R. M. B. MacKenna, B. W. S. Mackenzie, W. K. McKinstry, W. S. Maclay, D. J. MacMyn, R. Marnham, R. W. L. May, H. L. Milles, G. C. Milner, J. K. Monro, J. W. Monro, W. J. Montague, J. K. Moore, H. E. Nourse, R. I. Osmaston, F. B. Parsons, L. V. Pearson, J. C. C. Poole, E. A. B. Pritchard, M. G. P. Reed, W. H. G. Reed, L. A. Richardson, M. E. D. Roberts, D. N. Rocyn-Jones, M. A. Rushton, W. A. H. Rushton, E. M. Sargant, H. J. A. Simmons, A. S. Smith, H. Smith, A. W. Spence, J. W. Stork, C. E. Taylor, G. F. Taylor, H. S. Taylor Young, R. S. Tooth, W. E. Underwood, R. Watson, J. G. Wigley, H. L. Wilson, F. G. Winterton, E. J. Worthington, and H. R. Youngman.

UNIVERSITY OF LONDON.—The Semon Lecture entitled the Advancement of Laryngology: A Plea for Adequate Training and Closer Coöperative Action will be given in the Lecture Hall of the Royal Society of Medicine (1, Wimpole-street, W.) by Mr. A. Logan Turner, at 5 P.M. on Nov. 1st.; the chair will be taken by Mr. Charles A. Parker.

UNIVERSITY OF BRISTOL.—Post-graduate demonstrations will be held at Swindon on Oct. 24th, when Mr. H. Chitty will discuss Infantile Paralysis, Ætiology, Stages, and Prevention of Deformities, and at Boscombe on Oct. 26th, when Dr. Walter Swayne will deal with Toxæmia of Pregnancy.

The annual dinner of the University of Bristol Association of Alumni (London branch) will be held on Nov. 9th, at 7.30 for 7.45 P.M., at Pagani's restaurant, 42–48, Great Portland-street, London, W. 1, Lord Haldane presiding. Tickets (8*s.* 6*d.*, exclusive of wines) may be obtained from Dr. E. Casson, Holloway Sanatorium, Virginia Water, Surrey.

UNIVERSITY OF GLASGOW.—The following degrees have been conferred:—

M.D.—With honours: John N. Cruickshank and Douglas M'Alpine (in absentiâ). With commendation: John M'Callum Lang, Alexandrena M. Maclennan, Charles L. Sutherland, and Walter Telfer. Ordinary degree: Kinloch Falconer, Alexander Fraser, and Henry J. Macbride.

M.B., Ch.B.—With honours: Benjamin G. Ives, Duncan L. Pow, and Alexander S. Henderson. With commendation: Andrew Meiklejohn, Janet M'Leod Stewart, Andrew M. Girvan, Moses Cohen, John M. Henderson, John M'Killop Fleming, Peter Shannon, Monica M. Bateman, James Gibb, Thomas W. Hill, Archibald M'Lellan. Ordinary degree: James H. Adam, James R. B. Alexander, Samuel M. Allan, Conway P. Allen, Isabella D. Anderson, Matthew C. Bain, Margaret A. Barr, Oliver F. Barr, Henry Baxter, John B. Bell, James S. Bizzett, John D. Black, Robert Black, Colin C. Blair, Harold W. Bowyer, Marion C. Boyd, W. Brown, William Brown, William M. Brown, Arthur Browning, Thomas W. Buchan, Ian M. Burdon, Alexander B. Burns, Joseph B. Bushe, Isabella E. Campbell, Patrick A. Carric, Evelyn L. Caskey, David L. Charters, Isobel M. Chisholm, Gilbert Cochrane, Samuel R. Costley, William Craig, George M. Currie, Lucie Leon van Dam, Alexander F. Davidson, Elsie B. Dickinson, James L. Dunlop, Andrew N. Fergus, James Fleming, Anne M. Forrest, James C. Fotheringham, Archibald L. Galbraith, Edward J. M. Gallagher, John E. Geddes, Eric G. Gerstenberg, James M. S. Gilbert, Joseph D. Glaister, Alan D. Gowans, Mary J. L. Gracie, Gerald F. Graham, John W. Graham, Christina Grant, Robert Haddock, Andrew Hamilton, James Hamilton, William H. Hay, David Henderson, James Henderson, Norman P. Henderson, Ernest Holmes, William A. Horne, Jennie C. Hunter, Thomas M. Hunter, Sara Jacobs, Robert J. Jarvie, Douglas P. K. Jockel, Moses Joels, John M'Queen Johnston, James S. Kamester, William Kelm, James A. Kerr, Matthew Laidlaw, James Laurie, Agnes A. Lawson, James C. Lindsay, Flora Livingstone (Mrs. R. N. MacDonald), Alexander Logan, Andrew Logan, Daisy B. M'Bride, Alexandra M. MacCormick, Agnes M'Creadie, Hugh M'Crorie, Archibald W. M'Culloch, Eileen M. M. Macdonald, Isobel C. Macdonald, Samuel R. M'Dougall, Alick M'Glashan, Cecilia M'Guinness, Donald G. S. Mackay, Mary L. M'Kay, Thomas S. M'Kean, Euphemia D. Mackenzie, John C. H. M'Kenzie, Peter L. M'Kinlay, William W. Mackinlay, John M'Laren, Margaret B. M'Lellan, Angus M. Macleod, Catherine M. Macleod, Malcolm Macleod, Neil MacLeod, Nicol C. Macleod, Grace M'Lintock, Margaret J. M'Pherson, May Marshall, Margaret M. U. Martin, Russell D. Martin, Edin E. Miller, David M. Mitchell, James J. Mitchell, Marjorie H. Mitchell, George Montgomery, Aaron Morrick, Leah Morris, James G. Munro, Murdo Murchison, Thomas J. Murray, Reuben Naftalin, Gertrude M. Neale, Thomas C. H. Neil, Joseph Ordansky, Matthew Orr, George A. Pollock, Thomas G. Rankine, Lawrence Reid, Margaret G. Reid, Annabella Rennie, James Rennie, Stuart Revels, Kathleen M. Riddle, Hugh Rinn, David Robertson, Walter M. Robertson, Florence M. Robinson, Alice Rosenblatt, Alexander W. Ross, Alexander Russell, Georgina Russell, John M. Sclater, Archibald C. Scott, Stephen C. Scouller, Norman S. Setten, William C. Sharp, Herbert J. Sheppard, Arthur Sheridan, James S. I. Skottowe, Charles C I. Slorach, Robert M'Dougall Smellie, Elizabeth C. Smith, Mary S. Smith, Olive M. Somerville, Samuel M. Steel, Enid G. Stevenson, Lennox Stevenson, Mary Y. M'Arthur Stevenson, William L. Stewart, Margaret E. Stobo, Albert J. Struthers, Gavin Struthers, Nora Surtees, Alexander Sutherland, William D. Sutherland, William S. Syme, Annie V. Taylor, William M. P. Taylor, Thomas Tennent, Donald F. S. Thomson, James M. Thomson, John M. Thomson, Mark L. M. Thomson, Ann W. Turnbull, Alexander R. Waddell, John Walker, Robert Walker, Henry C. Wallace, James A. Waterman, John N. Watson, William H. Watson, William T. Westwood, John Wilkie, Anne C. Wilson, Harry E. C. Wilson, William B. Wilson, John Wingate, Margaret E. Wylie, James S. Young, and Jean L. Young.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on Oct. 1st, the following were admitted, after examination, as Fellows :—

Margaret Hogg Grant, John Aitken Gilfillan, Alexander Reginald Lester, Colin William McRury, and Manuel Joseph Saldanha.

A bronze medal, specially struck in commemoration of the octo-centenary of St. Bartholomew's Hospital, has been presented to the Faculty by Dr. Alexander Macphail. The medal has on one side the head of Rahere, the founder of the hospital, and on the other William Harvey.

UNIVERSITY OF ST. ANDREWS.—At recent examinations the following candidates passed in the subjects indicated :—

THIRD PROFESSIONAL EXAMINATION FOR M.B., CH.B. DEGREES.

Materia Medica.—Alexander P. R. Borrowman, Barbara T. Cubitt, David C. Dickson, Davina M. Dingwall, Henry A. Graham, Janet L. M. Inglis, Crawford A. Lindsay, May A. Low, Janet E. Luke, Roberta G. McRae, Joseph H. Malloy, Mary E. Proudfoot, Renee Ritchie, Eric H. T. Rutherford, Raphael P. J. Rutherford, Bhavani Shanker, Jean R. Sheriffs, Robert W. Small, Jean J. Smith, Neil I. Smith, Karam Chand Virmani, and David D. Watson.

FOURTH PROFESSIONAL EXAMINATION FOR M.B., CH.B. DEGREES.

Medicine.—Andrew A. Finnigan, Jessie H. Fitchet, Alexander Henderson, James A. G. Keddie, Gordon D. Laing, Victoria R. L. Leslie, Ena M. Liddell, Francis McLagan, James R. Miller, Jermina M. Morrison, John R. Murray, Noel Nelson, Peter C. Robertson, Janet O. Stephen, and Gertrude J. Sturrock.

Surgery.—Colin R. Baxter, Thomas F. Black, Ellen Douglas, John R. Graham, Gordon D. Laing, Jeannie P. Laird, Victoria R. L. Leslie, Francis McLagan, John R. Murray, Peter C. Robertson, and Gertrude J. Sturrock.

Midwifery.—Monawar Khan Afridi, Colin R. Baxter, Thomas F. Black, Norman T. Brown, William F. Dorward, Lewis Farrell, Andrew A, Finnigan. Alexander Henderson, Lilian A. M. Johnston, Lutfur Rehman Khan, Gordon D. Laing, Jean R. Mason, James R. Miller, Noel Nelson, Peter C. Robertson, and Jainti Dass Saggar.

THIRD M.B., CH.B. DEGREE EXAMINATION.

Pathology.—Fakherddin El Ahmadi, Janet L. M. Inglis, Surendra Nath Lahiri, Mohan Lal, Rose M. B. Lee, Sydney C. McPherson, Ajudhia Nath Nanda, Robert Rutherford, Bhavani Shanker, Jean J. Smith, Neil I. Smith, and Karam Chand Virmani.

FIRST D.P.H. EXAMINATION.

Physics and Meteorology.—Frances Heron-Watson and James Lamberton.

FINAL L.D.S. EXAMINATION.

Dental Bacteriology and Operative Dental Surgery.—James T. Crighton.

Dental Surgery and Pathology.—James T. Crighton, John M. Laburn, and James Lindsay.

Surgery.—Alexander A. Galloway.

UNIVERSITY OF MANCHESTER.—The annual dinner for past and present students of the Medical School will be held at the Grand Hotel, Aytoun-street, on Nov. 8th, at 7.30 P.M. Tickets, price 15*s.* 6*d.*, may be obtained from the hon. secretary of the Dinner Committee at the Medical School.

TUBERCULOSIS SOCIETY.—A meeting will be held to-day, Friday, Oct. 19th, at 8 P.M., at the Margaret-street Hospital for Consumption, Margaret-street, London, W., when Dr. J. H. Sequeira will read a paper on Cutaneous Tuberculosis, illustrated by lantern slides.

HUNTERIAN SOCIETY.—The first dinner meeting will be held at Simpson's Restaurant, 2 and 3, Bird-in-Hand-court, 77 Poultry, Cheapside, on Oct. 22nd, at 7.30 P.M. (Price 3*s.* 6*d.* excluding wines.) After dinner, at 8.30 P.M., the presidential address on the Pitfalls of Medical Practice, will be delivered by Sir Bruce Bruce-Porter.

SCIENTIFIC AND INDUSTRIAL RESEARCH. — The report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1922–23 has now been issued. The contents of the volume comprise the report of the committee, the report of the advisory council, a summary of the work of the research boards and committees of the department, and numerous appendices. The report (price 4*s.*) may be obtained in London at H.M. Stationery Office, at Imperial House, Kingsway, W.C. 2, or 28, Abingdon-street, S.W. 1.

EVOLUTION IN RELATION TO CHRISTIAN PRINCIPLES. A Medical Prayer Union meeting will be held, by invitation of Dr. Mary Scharlieb, at 149, Harley-street, London, W., on Oct. 25th, when an address will be given by Mr. A. Rendle Short on Evolution in Relation to Christian Principles. Those intending to be present should inform the hon. secretary, Dr. Tom Jays, Livingstone College, Leyton, London, E. 10.

CHADWICK PUBLIC LECTURES. — The following lectures will be delivered before the end of the year. In London : on Oct. 29th, 5.15 P.M., at the Medical Society of London, Chandos-street, Cavendish-square, the Disposal of the Dead, by Dr. C. Killick Millard ; on Nov. 9th, 16th, and 23rd, 8 P.M., at the Royal Society of Arts, John-street, Adelphi, Hygiene and Architecture, by Major Harry Barnes ; on Dec. 3rd, 8 P.M., at Goldsmiths' College Lecture Hall, New Cross, S.E., Housing Standards—How they can be Raised, by Dr. A. K. Chalmers, who will repeat the lecture on Dec. 5th at Kensington Town Hall. In Bristol, on Dec. 5th, at the University, the Theory and Reasonable Practice in the Disinfection and Disinfecting of Ships, by Dr. W. M. Willoughby. Further particulars of Chadwick lectures may be obtained from the Secretary, Chadwick Trust, 13, Great George-street, Westminster, S.W. 1.

AN INTERNATIONAL CLINIC OF PLASTIC SURGERY.—Arrangements are being made to supply a gap in the facilities for the practice and teaching of plastic surgery. It is proposed that a portion of the existing St. Andrew's Hospital at Dollis Hill should be utilised until funds are available to build another wing to the hospital to be devoted entirely to cases requiring plastic operations. Accommodation will be provided both for paying and free patients, the latter paying maintenance cost only whilst they are in hospital. A clinic will be held at the hospital and post-graduate classes will be arranged. The surgical and lecturing staff include the names of Mr. H. D. Gillies and Mr. T. Pomfret Kilner (Great Britain), Dr. J. Eastman Sheehan and Dr. Ferris N. Smith (America), and Prof. Lemaitre (France), all being well-known workers along this special line.

It is estimated that a sum of about £25,000 will be required. Donations should be made out to "International Clinic of Plastic Surgery," St. Andrew's Hospital, Dollis Hill a/c, London, N., and forwarded to the London Joint City and Midland Bank, 69, Pall Mall, London, S.W. 1, where a special account has been opened.

National Council for Combating Venereal Diseases.—An extraordinary general meeting of the Council will be held at 2.30 p.m., on Nov. 8th, at 1, Wimpole-street, London, W. 1. Items on the preliminary agenda issued are the definition of the policy of the Council *re* child assault, the provision of literature and publicity material on the subject of character training in its relation to sex control (resolution to follow), and the consideration of a resolution in which coöperation is suggested with the Government of India in helping the formation of an All-India Council for Combating Venereal Diseases.

During the last few days two out of the three more important German medical journals have suspended publication. The *Deutsche Medizinische Wochenschrift* and the *Medizinische Klinik* have ceased to appear, while the *Münchener Medizinische Wochenschrift* remains. The *Deutsche Medizinische Wochenschrift* was founded in 1874 by Dr. Pau Börner, and the *Medizinische Klinik*, which is the organ of the Berlin Medical Society and recently incorporated the *Berliner Klinische Wochenschrift*, has been appearing weekly for the past 19 years.

Conference of Cremation Authorities. — By invitation of the Lord Mayor of Liverpool, the Cremation Society of England will hold a conference at the Town Hall, Liverpool, at 3 p.m. on Oct. 25th, Dr. H. T. Herring in the chair. The following are already settled as subjects for discussion: Cremation Propaganda; the desirability of forming a federation of cremation authorities, by affiliation of each cremation authority with the Cremation Society of England, or otherwise; the issue of certificates during lifetime for subsequent cremation at death; issue of quarterly bulletin to cremation authorities; combined propaganda issued on behalf of the cremation authorities; and future conference arrangements.

Refugees in the Near East.—Dr. Fridtjof Nansen (High Commissioner for Refugees of the League of Nations) will speak on the Near East refugee question at the Central Hall, Westminster, on Oct. 24th, at 8.30 p.m. The Duke of Atholl will preside; during the course of the evening Miss Maude Royden will speak, and a specially-prepared film which has just reached this country will be exhibited. The meeting has been organised under the auspices of the All-British Appeal for the Near East, and applications for tickets should be made to the Save the Children Fund, 42, Langham-street, W. 1, or to the Imperial War Relief Fund, General Buildings, W.C. 2. Admission is free, but a limited number of seats are being reserved and applications for these should be accompanied by a remittance of 2*s.* 6*d.*

The Journal of Scientific Instruments.—A new monthly publication dealing with the principles, construction, and use of scientific instruments has been produced by the Institute of Physics, with the coöperation of the National Physical Laboratory. The first number contains the following articles: The Measurement of True Height by Aneroid, by L. N. G. Filon, F.R.S.; Two New Methods of Measuring the Internal Diameters of Transparent Tubes, by J. S. Anderson, D.Sc., and Guy Barr, D.Sc.; On An Improved Temperature Control for the Pulfrich Refractometer, by T. M. Lowry, F.R.S., and R. G. Parker, B.Sc.; a New Relay and its Application to Sustaining Pendulum Vibrations, by H. A. Thomas, M.Sc.; a General-Purpose Recording Drum, by C. V. Boys, F.R.S.; the Chain Balance, by Sir Flinders Petrie, F.R.S.; and a New Recording Kata-Thermometer, by E. H. J. Schuster, D.Sc., besides miscellanea and reviews. The journal will be published on the 15th of each month at 2*s.* 6*d.* a number, and the annual subscription is 30*s.* post free. Copies of the journal may be obtained through any bookseller, or direct from the Institute of Physics, 10, Essex-street, London, W.C. 2.

The late Dr. J. R. S. Robertson.—Dr. John Robert Stevenson Robertson, who died in London on Sept. 26th at the age of 64, received his medical education at the University of Edinburgh, graduating M.B., C.M., in 1881. From 1883 to 1888 he served as an army surgeon, being attached to the Guards; he received the Egyptian War Medal and the Khedive's Bronze Star. At the battle of Abu Klea in 1885 Dr. Robertson was in the square beside General F. G. Burnaby, when the latter died of his mortal wound. After retiring from the service, with the rank of colonel, he practised at Southsea, and later gave up professional work and moved to Hayling Island, where he took a great interest in local affairs—for example, in the campaign against mosquitoes, which was there carried out. Dr. Robertson was a keen golf and tennis player. A colleague describes him as "a very pleasant companion, full of good humour, and pleasant stories and reminiscences." Dr. Robertson suffered a great loss during the war in the death on active service of his elder son. His widow and younger son survive him.

Medical Golfing Society.—The autumn meeting was held at Rye Golf Club on Oct. 13th and 14th. Much appreciation was expressed of the hospitality and kindness shown to the society by the officials and members of the club. The results of the competitions were as follows:—Canny-Ryall Challenge Cup: H. P. Aubrey, 85 − 10 = 75; H. D. Gillies, 74 + 3 = 77; H. Wolseley Lewis, 85 − 7 = 78; T. P. Kolesar, 76 + 3 = 79. Scratch *v.* Bogey (under handicap): Sir K. Goadby, 2 down; H. Wolesley Lewis, 4 down. The Foursomes *v.* Bogey Competition under handicap ended in a tie between H. A. Richards and W Gilliatt, and W. L. Lamplough and H. D. Gillies.

Chelsea Clinical Society.—The programme of the twenty-seventh session is as follows:—Oct. 30th: Annual dinner at the Café Royal. Nov. 20th: Discussion on the Treatment of the Failing Heart. Opener: Sir Sydney Russell-Wells. Dec. 18th: The Manipulative Treatment of Joint Diseases. Opener: Mr. Frank Romer. Jan. 15th, 1924: The Treatment of Functional Nervous Disorders. Opener: Dr. S. A. Kinnier Wilson. Feb. 19th: The Treatment of Common Eye Disorders. Opener: Mr. Ernest Clarke. March 18th: The Treatment of Painful Menstrual Disorders. Opener: Dr. T. W. Eden. April 15th: Clinical meeting. May 20th: The Treatment of Non-Venereal Genito-Urinary Diseases. Opener: Sir John Thomson-Walker. Preceded at 8 o'clock by the annual meeting.

National Milk Conference.—A conference to discuss the different aspects of pasteurisation will be held in the Council Chamber of the Guildhall, London, E.C., on Nov. 21st. In the morning Lord Astor will preside. A paper on Methods and Processes of Pasteurisation will be read by Mr. Richard Seligman, and a discussion will be opened by Mr. P. B. Tustin. Physical Changes will be the subject of an address by Mr. A. T. R. Mattick, and Prof. H. R. Kenwood will open the discussion. Dr. S. B. Schryver will deal with Chemical Changes and Mr. G. W. Monier Williams, followed by Captain John Golding, will open the discussion. In the afternoon, Lord Dawson presiding, Prof. J. M. Beattie will read a paper on Bacteriological Changes, followed by Captain S. R. Douglas, F.R.S., Dr. Thomas Orr, and Mr. R. Stenhouse Williams. Prof. F. G. Hopkins, F.R.S., will then deal with Biochemical Changes. Dr. Harriette Chick will open the discussion, followed by Dr. S. S. Zilva and Captain W. E. Elliot. Finally, Financial and Commercial Aspects of Pasteurisation will be discussed by Mr. J. H. Maggs and Mr. G. Cecil Jones. Further particulars can be obtained from Miss H. M. Willans, hon. sec., National Milk Conference, 3, Bedford-square, London, W.C. 1.

Appointments.

Macnair, R. A. C., has been appointed Assistant Resident Medical Officer, the Warwickshire King Edward VII. Memorial Sanatorium.

Stamford, R. B., F.R.C.S. Edin., L.R.C.P. Lond., to be one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 20; and Sparrow, G., M.B., B.Ch. Camb., F.R.C.S. Edin., for County Court Circuits Nos. 42 and 50.

Certifying Surgeons under the Factory and Workshop Acts: Caudwell, F. B. H., M.R.C.S., L.R.C.P. Lond. (Coggeshall); Gaskell, H. S., M.B., Ch.B. Edin. (Stowmarket); and Anderson, W. (Polesworth).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—H.S. £150.
Bath, Royal United Hospital.—Asst. H.S. £150.
Bermondsey Hospital and Medical Mission, 44, Grange-road, Bermondsey, S.E.—R.M.O. £100.
Bermondsey Parish Infirmary, Lower-road, Rotherhithe, S.E.—Two Jun. Asst. M.O.'s. £400.
Bethlem Hospital, Lambeth-road, S.E.—Two Res. H.P.'s.
Brighton, Royal Sussex County Hospital.—Hon. Surg. Clin. Asst.
Bristol General Hospital.—Two H.P.'s., H.S., &c. Each £125.
Cambridge, Addenbrooke's Hospital.—H.S. £130.
Charing Cross Hospital Medical School.—Pathological Chemist. £500.
City of London Hospital for Diseases of the Heart, Victoria Park, E.—H.P. £125.
Dumfries, Crichton Royal.—Asst. P. £350.
Durham County Council Education Dept.—Asst. School M.O. £600.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—R.M.O. £200. H.S. £125. Radiologist. £100. Phys. for Skin Department.
Evelina Hospital, Southwark, S.E.—Med. Radiographer. £120.
Gloucestershire Royal Infirmary.—Hon. Anæsth. Two Hon. Dental Surgeons.

Hereford County and City Mental Hospital.—Second Asst. M.O. £350.

Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.

Hull and Sculcoates Dispensary.—M.O. £450.

London County Mental Hospital Service.—Seventh Asst. M.O. £432.

Leeds Public Dispensary.—Sen. Res. M.O. £200. Also Hon. Radiologist and Hon. Dent. Surg.

Manchester Royal Infirmary.—H.S., Aural, &c., Dept. £100.

Manchester, St. Mary's Hospitals.—H.S. £50.

Metropolitan Hospital, Kingsland-road, E.—Sen. H.P. and H.S., Jun. H.P., and three Jun. H.S.'s. Each £100.

Nottingham General Dispensary.—Two Res. Surgs. Each £250.

Plaistow Fever Hospital, Samson-street, E.—Sen. Asst. M.O. £430.

Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. S. to Ear, Nose, and Throat Dept.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Clin. Assts. £105.

St. Helens County Borough.—Asst. M.O. £600. Also Asst. M.O.H. £450.

St. Mary's Hospital, Paddington, W.—Med. Supt. £350.

St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.

Sheffield Royal Infirmary.—Ophth. H.S. £100.

Sudan Government Medical Dept.—Med. Inspector. £E.720.

Sunderland Royal Infirmary.—Two H.S.'s. £140.

York County Hospital.—Res. M.O. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Middlesbrough, Yorks (North Riding); Littleport, Cambs; Ellesmere Port, Cheshire.

Births, Marriages, and Deaths.

BIRTHS.

DAVIS.—On Oct. 13th, at Upper Berkeley-street, the wife of K. J. Acton Davis, M.Ch., F.R.C.S., of a daughter.

FURNESS.—On Oct. 11th, at Latham House, Melton Mowbray, the wife of H. S. Furness, M.D., of a daughter.

SPENCER-PAYNE.—On Oct. 9th, at Colney Hatch-lane, Muswell Hill, the wife of A. U. Spencer-Payne, M.R.C.S., L.R.C.P., L.D.S., of a son.

MARRIAGES.

MACDONNELL—QUIGLEY.—At Dublin, on Oct. 10th, by Rev. Fr. John P. White, P.P. (uncle of the bride) assisted by the Very Rev. Canon Casey, P.P., and Very Rev. Canon Pettit, P.P., John Joseph MacDonnell, M.B., M.R.C.S., D.P.H., to Julia, eldest daughter of Mr. and Mrs. T. Quigley.

PATERSON—BLAIKIE.—On Oct. 8th, at Christ Church, Mayfair, Donald Hugh Paterson, M.B., M.R.C.P., to Dorothy Reed. daughter of Mr. and Mrs. G. W. Blaikie, of Toronto, Canada.

UNDERWOOD—GERMAN.—On Oct. 13th, in London, John Ernest Underwood, M.B., B.S., B.Sc., D.P.H., to Katharine German, widow of Richard German, of Ashby-de-la-Zouche.

DEATHS.

CALDECOTT.—On Oct. 14th, at Reigate, Charles Caldecott, M.B., B.S. Lond., aged 62.

EDWARDS.—On Oct. 13th, in London, from pneumonia, Major-General Sir William Rice Edwards, K.C.B., K.C.I.E., C.M.G., late Director-General Indian Medical Service.

MICHIE.—On Oct. 13th, very suddenly, whilst out shooting, Harry Michie, M.B., C.M., of 27, Regent-street, Nottingham.

ROCHE LYNCH.—On Oct. 7th, at Nassau-road, Barnes, Dr. Jordan Roche Lynch, late of Holland Park-avenue, aged 80.

SADLER.—On Oct. 11th, at Horton House, Rugby, Michael Thomas Sadler, M.D., formerly of Barnsley, Yorkshire, in his 90th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Quarter Page, £3. Half a Page, £6. Entire Page, £12.

Special Terms for Position Pages.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear it if reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Oct. 22nd.

ODONTOLOGY: at 8 P.M.
Presidential Address:
By Mr. Douglas Gabell.
Casual Communications:
Mr. E. B. Dowsett: An Interesting Case of Rarefying Periodontitis.
Mr. H. C. Malleson.

Tuesday, Oct. 23rd.

MEDICINE: at *St. Mary's Hospital, Paddington, W.*
5.15 P.M.—*Introductory Address:*
By the President, Dr. Robert Hutchison.
5.30 P.M.—*Short Papers:*
Prof. F. S. Langmead and Dr. E. C. B. Calvert: Cases of Obesity in Children (Hypopituitarism) with Some Investigations into their Carbohydrate Metabolism.
Dr. C. M. Wilson: Exophthalmic Goitre.
Demonstration: (time permitting)
Dr. A. C. Alport: A New Method of Blood-letting.
Selected cases of interest will also be demonstrated.
Tea will be served at 4.45 P.M.

Wednesday, Oct. 24th.

COMPARATIVE MEDICINE: at 5 P.M.
Introductory Address:
By the President, Sir Clifford Allbutt.
Paper:
Mr. Frederick Hobday: Cryptorchidism in Animals and Man (with illustrations and specimens taken from over 1200 cases).
A discussion will follow, to be opened by Mr. W. McAdam Eccles.

Thursday, Oct. 25th.

UROLOGY: at 8.30 P.M.
Presidential Address:
Dr. Langdon Brown: The Influence of Endocrines on the Work of the Kidney.
To be followed by a discussion.

VICTOR HORSLEY MEMORIAL LECTURE: at 5 P.M.
The First Lecture on the Relations between Surgery and Physiology, will be given by Sir Edward Sharpey Schafer, F.R.S., in the Barnes Hall. The chair will be taken by Sir John Bland-Sutton.

Friday, Oct. 26th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.)
Cases:
Mr. J. P. Lockhart-Mummery: Hemihypertrophy, traced from 5 years of age up to the age of 21.
Other cases will be shown.

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
Paper:
Dr. W. Perceval Yetts: Pestilence and Leechcraft in Ancient China (illustrated with lantern slides).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Oct. 22nd.—8.30 P.M., Clinical evening: Exhibition of Cases and Radiograms.

HUNTERIAN SOCIETY.
MONDAY, Oct. 22nd.—Dinner at Simpson's Restaurant, Cheapside, 7.30 P.M. Presidential Address by Sir H. E. Bruce Bruce-Porter: The Pitfalls of Medical Practice.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Oct. 22nd.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.

TUESDAY.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Simson: Gynæcological Demonstration. 3 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W. 1.

Intensive Course in Cardiology. (Conclusion.) Mornings 10 and 11.15 A.M.; afternoons 2 and 3 P.M. Saturday in the forenoon only.

MONDAY, Oct. 22nd.—Dr. B. T. Parsons-Smith: The Electrocardiograph. Dr. F. W. Price: Diseases of the Myocardium. Dr. R. O. Moon: Ward Demonstration. Dr. J. Strickland Goodall: Out-patients.

TUESDAY.—Dr. B. T. Parsons-Smith: The Treatment of Auricular Fibrillation. Dr. R. O. Moon: Congenital Heart Disease. Dr. F. W. Price: Ward Demonstration. Sir S. Russell-Wells: Out-patients.

WEDNESDAY.—Dr. F. W. Price: Diseases of the Arteries. Dr. P. Hamill: Treatment in Heart Disease. Dr. H. B. Weir: Pathological Demonstration. Dr. R. O. Moon: Out-patients.

THURSDAY.—Dr. R. O. Moon: Prognosis in Heart Disease. Dr. J. Strickland Goodall: Aortic Disease. Dr. B. T. Parsons-Smith: Ward Demonstration. Dr. F. W. Price: Out-patients.

FRIDAY.—Dr. J. Strickland Goodall: Blood Pressure and its Significance. Dr. John Parkinson: The Early Symptoms of Heart Failure. Sir S. Russell-Wells: Ward Demonstration. Dr. John Parkinson: Out-patients.

SATURDAY.—Dr. P. Hamill: Ward Demonstration.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Oct. 22nd.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Disorders of Emotional Expression: Dr. Kinnier Wilson.

TUESDAY, Oct. 23rd.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Muscular Atrophies: Dr. Adie.

THURSDAY, Oct. 25th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Cerebral Tumours: Dr. Gordon Holmes.

FRIDAY, Oct. 26th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Labyrinthine Disorders: Mr. Sidney Scott.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Oct. 22nd.—12 noon, Cerebro-spinal Fluid Pathology: Dr. J. Godwin Greenfield.

A COURSE of LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM commenced on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s*. The fee for the Anatomy and Physiology Lectures is £3 3*s*. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7*s*. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. HINDS HOWELL, Dean of Medical School.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Oct. 23rd.—5 P.M., Dr. J. H. Sequeira: Tuberculosis of the Skin.

THURSDAY.—Dr. W. K. Sibley: Special Methods of Treatment.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Oct. 25th.—4 P.M., Mr. Higgins: The Treatment of Otorrhœa.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Oct. 23rd.—4.15 P.M., Dr. C. H. Melland: Some Functional Nervous Conditions.

FRIDAY.—4.15 P.M., Dr. F. Craven Moore: The Modern Conception of the Investigation of Dyspepsia.

ANCOATS HOSPITAL.

(Special Course on Surgical Tuberculosis.)

THURSDAY, Oct. 25th.—4.30 P.M., Mr. E. E. Hughes: Abdominal Tuberculosis.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 P.M. each day.)

MONDAY, Oct. 22nd.—(At the Children's Hospital.) Dr. Hubert Armstrong: Clinical.

TUESDAY.—(At the Southern Hospital.) Dr. Johnson: Desseminated Sclerosis.

WEDNESDAY.—(At the Northern Hospital.) Dr. Bigland: Neurological Cases with Special Reference to Neurosyphilis.

THURSDAY.—(At the Stanley Hospital.) Miss Ivens: Some Causes of Pelvic Infection.

FRIDAY.—(At the Royal Infirmary.) Dr. Hay: Digitalis.

Notes, Comments, and Abstracts.

VILLAGE SETTLEMENTS FOR THE CONSUMPTIVE.

SOME ECONOMIC CONSIDERATIONS OF "TRAINING."

BY P. C. VARRIER-JONES, M.A. CAMB., M.R.C.S., L.R.C.P. LOND.,

AND

THE RIGHT HON. SIR CLIFFORD ALLBUTT, P.C., K.C.B., M.A., LL.D., M.D., F.R.C.P., F.R.S.

INTEREST in the development of the Papworth Village Settlement (so called for the want of a better name) seems unabated; indeed, the number of inquiries, far from becoming less, grows daily in volume. As the principles on which the scheme is founded become more widely and better known, so the advocates become greater in number, and the inquiries of those, whose interest is for the first time aroused, become more incessant. We have from time to time set forth our views on this subject, and in general terms explained, as best we could, the ideas which underlie the colony scheme; but we fear that our explanations have not as yet been sufficiently clear, or our articles, and the book by one of us, have not been read. We have thought, therefore, that some advantage may be gained by a further discussion of the principles which underlie the gradual growth of the village settlement, of how and why the evolution took place, and of the grounds of its success and its immense advantages, not only to the victims of consumption, but also for the safety of those who belong to the healthy world.

It seems that only by reiteration can the truth of a proposition be driven home; if then we go over the ground once again it is not only that we must, but also because it is only by a proper understanding of each step in the advance of the crusade against tuberculosis that success can be obtained. We have lately seen a prospectus in which, for example, it is stated that training is provided for the consumptive ex-soldier in the art of the blacksmith. Let us for a minute examine this proposition. Are we in all seriousness asked to suppose that a tuberculous ex-soldier—i.e., a man who has been discharged from the army with tuberculosis of the lungs caused or aggravated by military service—may, after a period of training, be made into a blacksmith? The armistice took place in November, 1918; the diagnosis of tuberculosis must have been made before that date. When, therefore, after the lapse of three to five years the man is to receive this instruction, there can be no probability of his disease being in an early stage. Whether meanwhile he has received sanatorium treatment or not, work at the open forge is no light job for such a patient, even if the technique of the business could be mastered.

When are we going to bring some common sense to the solution of the problem? It may be said that we have selected a ridiculous example; and, to the credit of the institution, it must be confessed that although it was stated in the prospectus that skilled instructors were available for various trades, including the particular one under consideration, not only had no instructor been appointed, but there was no smithy nor tools for that instruction; which is something to the good.

However, similar statements are made about farming; let the following be an example: "The institution gives instruction in market gardening, including bee-keeping, poultry farming, and pig rearing"—an ambitious programme; yet where is the man, after this training, to find the capital sufficient to establish the business? Then again, "The second course trains men in 'light farming'" (whatever that may mean—the occupation is unknown in the agricultural world), but it confesses that though the dairy side of the farm has to be done by healthy workers, yet "most of the rest of the work, such as hay-making, digging, hoeing, and weeding, can be undertaken by convalescents." What man will get work on a farm if he is to pick and choose his job? What wage is he likely to get for part-time work when the full agricultural wage for a skilled agricultural worker (and he has been "trained") is 25*s*. a week? The truth is, the light job in the open air is a myth, and its advocates are false prophets.

But what is behind the idea of training a consumptive for a short time and then letting him take his chance in the world at large? A partly trained man—such as, at the end of six months, the patient is—is put to compete with the healthy fully trained worker, whether it be in the factory, or on the land, or in any other occupation where labour has to conform to the economic law, will find himself utterly outclassed. Playing at a trade is not learning a trade; and ninety-nine out of a hundred of the trainees in these training centres are well aware that the position is an impossible one. In the majority of cases, what was described to us by an official of one of the Ministries as "the blessed state of the infinity of training," fairly sums the matter up. This masquerade is not altogether the patient's fault. If a man sees that the system is obviously wrong, so wrong that the ordinary working man can see its futility, can we blame him if he takes full advantage of "the blessed infinity of training" and goes from one training colony to another, "learning" for six months now this trade and now that, qualifying for a full pension for the following six months, and, when that period comes to an end, making application for, and being sent by another tuberculosis officer to, another colony for a further period of training in some quite different occupation. So far, experience shows that the tuberculous ex-soldier fails to obtain the full advantages proposed to him; he is put off witb a worthless scheme.

One has only to make a tour of various institutions—the so-called training colonies—to be convinced that the training given is of little worth to enable the pensioner to "*earn his living once more.*" A temporary benefit certainly accrues from living under proper conditions, and by being given some technical instruction to occupy his time. But to play with a trade is one thing, to learn it sufficiently well to earn a living is another. It is true that to be set to some work is certainly better than the dull monotonous routine of the sanatorium, and in this respect it is a step forward; but let it not be supposed that we are thereby training a man to earn his living. The moral fibre is improved, but the mental, bodily, and manual preparation is insufficient equipment for a livelihood. The whole purpose of treatment of any disease whatsoever is to restore the patient's earning capacity so fully as to enable him to become either self-supporting, or as nearly so as possible. But the course of training usually prescribed, we maintain, is too short to be adequate for this purpose. We are attempting the impossible. Can a man with a disability of varying intensity—hardly ever less than 50 per cent. and too often more—(we are now speaking of the ex-soldier or pensioner) and at the age of 30 or over, learn a new technical trade, whatsoever it may be, so well as to compete with the 100 per cent. man who by long apprenticeship has a full and complete knowledge of that trade? Let us take a definite instance which has come to the notice of one of us. A young clerk in a training colony was asked, "Why did you give up clerking?" He answered that on account of his disability the firm he used to work for would not give him shorter hours; he was expected to work full time, or not be employed at all. This is, of course, only too common. The economic world will not support an unearning unit. A man who is unable to work economically must fall out. Against the hard economic fact our clerk had come up; he availed himself therefore of training in a new occupation for two reasons: (1) That during his training his pension allowances were increased to 100 per cent., and (2) he had free board and lodging. This was certainly an improvement on his pension of 30 per cent., which was the assessment of his disability. He had decided therefore to learn watch-repairing—the prospectus said, "watch-making and repairing"; but a moment's thought will convince anyone that watch-making is now carried on in factories where such an uncertain worker could not hope for a place. Watch-repairing seems at first sight to be a light trade easily taught and easily learned; but talk for a few minutes to an experienced watch and clock repairer and you will hear another story: First, one must recognise the peril of placing a consumptive, probably with others, in a tiny workshop which must be heated, as cold hands cannot manipulate small tools and small parts; secondly, the inexperience of the worker will make his employment utterly unremunerative to the employer. It must be remembered also that the watch and clock repairing trade is largely in the hands of Swiss and other foreign workers, labour which is cheaper and more highly skilled than any that can be turned out of the training centres.

What, then, was this clerk going to do at the end of his training? His answer was, "I am to have a little money when this training is over, and then I shall set up on my own." Where? He did not know. No doubt he pictured to himself a sunny English village, a shop and house already waiting to be occupied (he had not heard of the housing shortage), and populace willing and anxious to send in all their repairs, and a grant for stock-in-trade—a matter of £50 at the outside. Had he any experience of business? None. Had he thought of furnishing his house, or of times of relapse when his business would have to be carried on by an assistant?

When are we going to construct on knowledge a sound appreciation of the patient's medical condition, the bearing this has on his earning capacity, the conditions under which this capacity can be restored, and, finally, the help which is necessary and practicable? The old plausible advice, "Seek a light job in the open air," is on a par with the case above quoted. The same arguments apply, and the same misfortunes follow. The working-class consumptive cannot compete in the open labour market, even at his own trade, much less in a trade of which he has but a superficial knowledge. Are we to believe that a man can be trained in an occupation for six months and then be fit to compete with his fellow-workers in that particular trade, not to mention his restoration to health? Let us inquire of any skilled artisan, or any employer in any trade or profession, and we shall find the answer to be the same every time. In discussing the teaching and training of a city-bred man in farm work for a space of six months or so, we said [1] that the chances of success in such a change of employment were slender; and since then we have had no reason to modify our opinion. We said that "the unskilled hand, the untrained eye, and the inexperienced brain are of little use to the farmer and certainly cannot be profitably employed."

Those who ask us how many men can be trained in agriculture in the course of six months can have no idea of the tuberculosis problem or of its bearing upon the study of economics. "A genuine case of pulmonary tuberculosis, with a definite and progressive lung lesion, will undoubtedly benefit by a prolonged stay under ideal colony conditions; but ultimately very few will be able to stand alone, and, working from morning till night, to live on the produce of a small holding. The arrest of the disease is so imperfect and the conditions so unstable that the proposition cannot be a paying one; from a medical point of view alone, apart from economic and psychological factors, this instability is the main cause of failure, and must necessarily remain so until some method of stabilising the arrest is attained." Again, we said that "even a few months spent in specially fitted up shops at a colony is quite inadequate to qualify a patient to obtain his admission into any skilled trade and into the corresponding trade-union, even should he have at the end of the limited period of training the ability to perform the work." The truth is, the factory or a general workshop is no place for such a man. The pace required is too great; at once, or in a short time, he collapses under the mental, physical, and economic strain.

Now how does this experience compare with that gained by watching those who remain under *settlement* conditions at a village settlement? Here the fundamental factors—viz., the physical, mental, and economic—are materially altered. Let us consider the difference between "training" a tuberculous worker in a trade which it is impossible for him to follow under ordinary commercial conditions, and the "training" of a similar worker to *earn his living* under settlement conditions. The adverse factors which are responsible for the breakdown of the tuberculous worker in the commercial world are under settlement conditions eliminated. The stress and strain, the economic pressure, is reduced to a degree that he can bear. In other words, he is protected from the burden of competition. It is true that the industries of the settlement are run as business concerns—that is, they enable the worker to earn "his living," but the workers in the outside world, beside earning their own living, have to contribute to the interest on the capital for running those industries, and to the costs of management. At Papworth, by experience and experiment, it is found that this contribution is just what a consumptive is unable to make; he is unable to earn enough for large overhead charges and for a dividend for his employer. For these reasons a consumptive cannot be employed in a money-making concern, and we see why all employers "turn down" applications for employment by consumptives. But under suitable conditions the consumptive can and does earn his own living, and earns it fairly well. Is this not then the plan for further progress in the tuberculosis campaign?

The industries of the Papworth Colony are run as several concerns in order to see what happens economically when a consumptive is trained in a new occupation, to prevent confusion of results, and also to obtain a clear picture of the working of each industry, and its adaptability or otherwise to the needs of the consumptive. Moreover, each business is run, as far as possible, on commercial lines, all those features being retained which we are accustomed to look upon as essential to industry, and which the working man more especially regards as essential to his own service; for obviously one of the first questions a "prospective" settler asks himself is, "How far is this industry a going concern?" "Is it likely to pay me the wage to which I think I am entitled?" "Is it carried on in a business-like manner, for if not it will not succeed, and I shall be commercially stranded?" Having satisfied himself on these points, and being assured that the particular industry he selects can pay him a certain wage if he earns it, he next inquires as to the further subsidy which he knows will be necessary in order to secure the maintenance of his health and sufficient means to keep himself and his family. If these conditions are assured, the man no longer hesitates to throw in his lot with the village settlement.

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[1] THE LANCET, 1919, ii., 526.

Surely, then, these are matters for careful thought on the part of those in authority. The workings of the mind of the prospective settler must be studied. One man, it is true, may not give as much time and thought to these questions as another, but on the whole the trend of thought is much the same in each case; and men discuss their conditions with each other. With the right sort of man, the man who will try his best to benefit by the unique opportunity offered him, it is an easy matter to calculate his ability to perform a certain task, the time which he will take to do it, and the fruits of his labour. We have now collected facts and figures to prove that the consumptive can earn a wage sufficient, together with a small subsidy, to provide the necessaries of life for himself and his family. He is no longer to be a drag on the general community; no longer is he to serve as a source of infection either to his family or to his fellows. For the after-care committees he becomes a productive unit. These committees have sometimes, it is true, to deal with a different kind of man.

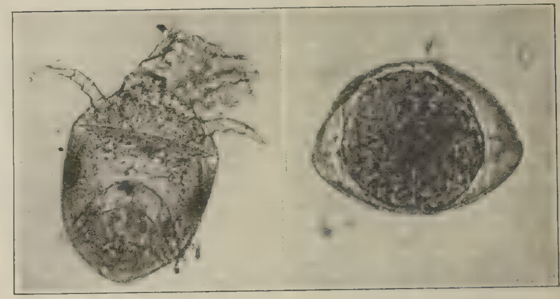
There is, of course, another type of man, who views the matter from an entirely different standpoint. He has no liking for industry; he tries his best when at home to escape that thraldom, and regards with suspicion the introduction of any such system into a sanatorium, which he supposes to be a place of holiday provided free by the State. He has no desire to "get well," lest his working capacity being restored his pension should be lost. To do a little work when he feels inclined, in his own way, at his own time, and at a job which he fancies, is exactly what he wants. He may not be inherently lazy, but he does not wish to be under any control or fettered by any kind of rules. This is unhappily the feeling which prompts so many ex-Service men to desire training in, e.g., boot-repairing, so that they may return home, set up a small business, and do as they like. These men have one fear, and one only—that is, lest, if they are not very careful, they may lose their pensions. So, again, the request to be set up in a small way of business as a dealer, or as a small shopkeeper, has the same motive behind it, a motive by no means confined to consumptives. The desire to escape from the monotony of industrial life, to live as one chooses or as others may seem to be doing, is an idea firmly fixed in the minds of a large number of ex-soldiers, but happily it is a diminishing one. The great upheaval caused by the war partly accounts for this perversion; the nation as a whole is waking up from similar dreams. Just as we were promised first-class hotels for consumptives, so we were told that immediately after the war a higher standard of living would be provided for all, without too much exertion or effort. We all know the fate of such dreaming. But gradually the economic position has become clearer and, just as the light open-air job promised by countless physicians is an economic failure in so far as the consumptive working man is concerned, so also the notion of a rapid intensive industrial training for the consumptive is a fallacy even more harmful.

A PLEA FOR A COLLEGE OF ENTOMOLOGY.

In an interesting article[1] on the Growing Importance of Entomology Dr. H. S. Fremlin points out that to most collectors entomology means collecting butterflies and moths, getting as many species of these as possible, having good series and as many varieties as one is able to obtain. To such a one the Bath White and the Camberwell Beauty are always looked-for prizes, and the mind turns now and then with longing to a Clifton Nonpareil, or a Crimson Speckled Footman; to all the Large Copper is a gem in the collection, even though it must be obtained at a shop. There are other collectors who hunt for beetles, or dragonflies, or bees, and here and there one who works for grasshoppers or earwigs; but these are few. Yet the real importance of entomology in the world is dependent on the great influence of insects in the vegetable kingdom and on the part insects take in the causation of disease. Insects may carry destruction into the vegetable world, and disease and death into the animal kingdom; this great multitude of butterflies, moths, wasps, flies, grasshoppers, beetles, aphides, mosquitoes, midges, fleas, thrips, lice, and so on, coming into existence every day and rising as a cloud over the earth, these are to be controlled, the friends improved and multiplied, and the enemies hunted out and destroyed. A large amount of good work is being done by entomological societies in training collectors, but Dr. Fremlin deplores the lack of central organisation. Entomology has to be taken up as a hobby, or learned by those who are necessarily brought in contact with insect pests, as gardeners, or as agriculturists. He urges the need of the formation of a College of Entomology, where men are trained in all branches of this subject, where insects and their parasites are investigated, where insect blights of individual species of plants growing in various parts of the world could have the pests and their parasites studied, where arrangements could be made to distribute useful parasites. This central body should, he considers, be linked up with stations in all parts of the world to give advice, examine specimens, and receive reports. Investigations carried out in the tropics on pests or disease-producing insects should be notified, and when necessary experts could be sent out to assist the investigator. Inspectors should also form part of the central staff to assist in training the public by lectures, advice, and practical help. A definite system of training should be required of all who were members of this College. They should have a general knowledge of all orders of insects and make a specialty of one. They should also have a good knowledge of botany, which is essential in connexion with vegetable blights, and of chemistry, so necessary in dealing with insecticides both in their preparation, use, and, where necessary, analysis.

A NEW SKIN GAME.

"Astonishing what people *will* carry about with them unawares," said the keeper of the Magic Shop in Mr. H. G. Wells's tale. At the Chilprufe Mills, Leicester, is a department to which wearers of these underclothes may send their worn garments for renovation. In this department Mr. John A. Bolton is conducting an investigation into the causes of the "felting" of underwear and, although he has not come across the "little wriggling red demon" of the tale, his investigations have brought to light a sufficiently varied collection of odds and ends. These were revealed by the microscopic examination of the sediment left in the water after the cleansing process, and include such trifles as the shells of bed-bugs, larval fleas, ova of various sorts, more particularly those of Ascaris and *Trichiuris trichiura*, adult ascarides, segments of tapeworms, desmids, and the hyphæ of moulds. The underwear of one child, the only one in the family which felted its woollens, was found to contain numerous granules of starch; an injudicious use of dusting powder at once presents itself to the mind, but it is possibly significant that the father of this child died of diabetes. One is reminded of the late Sir William Osler's tale of the ailing child of wealthy parents; it was before the days of vitamins and a numerous flock of consultants stood baffled around the puling infant. At last an aged practitioner took the child's napkin, extracted it with water, and applied the guaiacum test. The test was positive and scurvy stood revealed. Modern medicine stands in little danger of forgetting that the body is the garment of the soul (or "ego" if preferred); an eye to the garments of the body may help occasionally.



Shell of (?) bed-bug. Ovum of Ascaris.

A DOUBLE ACROSTIC.

The following double acrostic appeared in the *Observer* of Oct. 14th. Its quotation here gives away the "uprights," but presumably the time for sending in the solution has expired.

A Paper and its Founder
A hundred years ago:
No reading could be sounder
For any medico.

1. No exit this: but there's no doubt
It is a way of getting out.
2. Although she downward glances cast,
Undoubtedly the girl was fast.
3. A friend in need I'm often found
When you are on your daily round.
4. 'Tis pink or red; but if it lack
Its heart, you can't deny it's black.
5. Upright judges by the dozen
Wear the coat of the weasel's cousin.
6. "His diet was of wheaten bread,
And milk and oats and straw,
Thistles, or lettuces instead,
With sand to scour his maw."

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[1] The Entomologist's Record, vol. xxxv., No. 9.

THE FIRST

Victor Horsley Memorial Lecture

ON THE

RELATIONS OF SURGERY AND PHYSIOLOGY.

Delivered before the Royal Society of Medicine on Oct. 25th, 1923,

y SIR EDWARD SHARPEY SCHAFER, F.R.S.,
PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF EDINBURGH.

I HAVE felt it a peculiar honour to have been asked give the first Victor Horsley memorial lecture. I ad the less hesitation in acceding to the request that should do so because I am not only his oldest irviving scientific friend, but also his first fellow-orker. It is nearly half a century since he made is appearance as an eager, intelligent student in the d Physiological Laboratory at University College. iarpey had but recently retired from the teaching physiology, although his personal influence was ill felt. His place had been taken by Burdon-inderson, whose dominant idea was to make the ork of the subject as experimental as possible. ad anyone who has known Victor Horsley will adily understand with what keen interest this idea ould inspire him. There can indeed be no doubt was this training in experimental physiology which termined Horsley's future career both as a physiogist and as a scientific surgeon. And it is this uble career which may appropriately be chosen as example of the mutually beneficial influence of rgery and physiology.

I had almost been tempted by our long and intiate friendship, which began so auspiciously at iiversity College in 1875 and lasted until the day his death in Mesopotamia in 1916, to dwell, on is the first opportunity of commemorating his reer, upon the personal traits which were so striking feature of Horsley's character—his enthusiasm, his e of truth and hatred of hypocrisy, his energetic iving for everything he judged to be right and lexible antagonism to everything he thought wrong. it has not all that been done, far better than I or yone else could hope to do it, in the history which Stephen Paget has set forth, in that inimitable le which characterises all his writings? It is tunate that the life of Victor Horsley was ensted to such a biographer, nor was the biographer fortunate in having such a subject! How endidly he has taken advantage of his opportunity all of us know.

TERDEPENDENCE OF SURGERY AND PHYSIOLOGY.

have chosen the "Relations of Physiology and gery" as the text upon which to base the remarks ave to make to-day. It is my object to show that se subjects are mutually dependent: that physioy must call in the aid of surgery to solve many its most intricate problems, and that surgery not make any real advance unless it proceeds d-in-hand with physiology. It was not Horsley self who established this principle, but he haped upon the time when it was beginning to be lent. Only a few years before it might have admitted that there was a certain amount of rdependence between medicine and physiology, no one would have thought of connecting surgery anything but anatomy. That experiments on nals were necessary in order to elucidate the tions of the body had indeed been conceded. It recognised from Harvey onwards—yes, and long re Harvey—that no true advance could be made hysiology without such experiments. The operas involved in them have somewhat unfortunately ived the designation of "vivisection," and this has caused many who are ignorant of their nature to regard them as of an entirely different character from surgical operations in the human subject—although they are conducted in exactly the same manner as in man, with the same precautions to prevent unnecessary pain and with every effort to avoid unsatisfactory complications which might result from wound-infection and the like. But many of the older surgeons refused to believe that an operation on the lower animals could be utilised to obtain information which would be useful to them in the performance of similar operations in man, nor should I be surprised to hear that there are some who still hold this view. It is fortunate for the world that Victor Horsley was not one of these.

As I have remarked, he happened upon a time when the importance of animal experimentation as a guide to surgery was beginning to be recognised. There were two directions in which this tendency was particularly apparent. One of these involved the investigation of the functions of the brain, the other of what we now term endocrine organs—the uses of which were then for the most part obscure. And it was just these two subjects which attracted the attention of the physiologically trained but hitherto unknown young surgeon whose work was to throw so much light upon these dark places of the organism, places which hardly anyone had hitherto ventured to approach. It is on this account that I propose to deal first with these particular aspects of the question of the relations of surgery and physiology. I will begin with the subject of the functions of the brain and its related subject, cranial surgery.

CRANIAL SURGERY AND THE FUNCTIONS OF THE BRAIN.

Not very long before the entry of Victor Horsley to University College as a medical student, a young Scottish physician named David Ferrier published an elaborate series of researches on the results of electric stimulation of the cerebral cortex in animals. Some of these were confirmatory of experiments performed on the dog and cat by Fritsch and Hitzig, although the method of stimulation employed by Ferrier was a vast improvement on that used by the German observers. But what rendered Ferrier's results really important was the fact that he extended these researches to the brains of monkeys, which are entirely different in the conformation of the cerebral cortex from the brains of the dog and cat, but present a remarkable resemblance to the brain of the highest member of the order Primates, man. It is scarcely necessary to say that the brilliant experiments of Ferrier aroused universal interest. I shall myself never forget the impression made upon me by one such experiment which Ferrier showed to Burdon-Sanderson and the rest of us who were working in his laboratory. The confident way in which he could predict what would be the movement resulting from touching this or that portion of the cortex with the electrodes was calculated to arouse our wonder and admiration; and the demonstration always provokes the same feelings in every audience of students when the experiment is repeated before them. It was these experiments—supplemented as they have since been by those of Horsley and Beevor on the brain of the orang, and by the yet more recent and accurate results obtained by Sherrington and Grünbaum upon the orang, chimpanzee and gorilla—which have enabled the surgeon to locate the seat of an injury and tumour in the human brain, and to remove the tumour or to deal with the source of injury with advantage to the patient.

In all researches in experimental physiology, there are two chief methods employed to elucidate the functions of an organ. One is the artificial stimulation of the organ, causing it to pass into a condition of activity, the effect of such activity being duly noted. The other is the production of an injury in the organ, or its complete removal, the effect, if any, which results from such injury or removal being observed. With regard to the functions of the brain, this last aspect of the subject had by no means been neglected by antecedent workers, but discrepant results had been obtained. Indeed, up to the time of which I am speaking—i.e., the epoch of Fritsch and Hitzig and of Ferrier—physiologists were disposed to agree with Flourens that the whole cortex acts as one undivided organ and that the several parts of the body are not individually represented in it; in other words, that there is no such thing as localisation of functions in the cerebrum. One acute clinical observer, Hughlings Jackson, had, it is true, pointed out that the phenomena of traumatic epilepsy seem undoubtedly to indicate the existence of some kind of localisation in the cortex; since the "march" of the movements which result from the excitation producing the epileptic fit is different according to the seat of injury. But such a complete localisation as we now know to exist was unsuspected, and it was largely on this account that so much interest was aroused by the excitation experiments of Ferrier.

But if excitation of a particular area of the cerebral cortex provokes certain movements, it does not follow that we are to regard that area as representing a nerve centre for governing or producing those movements unless removal of the area is followed by paralysis of the movements. We may leave out of present consideration whether the so-called centre is automatic—i.e., works spontaneously—or whether it only represents the point of arrival of sensory impulses and the point of departure of the corresponding impulses to motor centres in the lower part of the central nervous system—i.e., whether it is a reflex centre. For this question, which was warmly debated at one time, may now be considered to be definitely settled in favour of the second hypothesis. In either case the final result of excitation and of ablation will be in the first case production of definite movements, in the second the inability to perform them.

At the period I am speaking of, many of the facts had been established, but the explanation was a matter of controversy. There were, moreover, still certain parts of the hemisphere which Ferrier had not explored, or which in his hands had yielded negative replies. And the results of the extirpations which he had performed in conjunction with his colleague Gerald Yeo, then professor of physiology in King's College, were not altogether satisfactory, nor did they agree in certain particulars with the work of others, especially that of Herman Munk, of Berlin, who was working on much the same lines both in the dog and monkey.

RESULTS OF REMOVAL OF DEFINITE AREAS OF THE CORTEX.

This, then, was a problem still needing elucidation, and when in 1883 I succeeded Burdon-Sanderson in the Chair of Physiology at University College, it was one of the first investigations at which I resolved to work; especially with the view of determining more exactly the results of removal of definite areas of the cortex. Now Ferrier and Yeo's work—I am referring only to their earlier work, the later was accomplished under different conditions—had been done by pre-Listerian methods, and I felt convinced that this might be the source of some of the discrepancies exhibited, as compared with the results of Munk and others. My own surgical training was unfortunately pre-Listerian owing to the slow progress which was made in London in the adoption of Lister's methods, and the active opposition with which they were met by many of the leading London surgeons. I therefore recognised the necessity of securing as a collaborator a young and skilful surgeon thoroughly imbued with Listerian ideas, and enthusiastically interested in physiology. You may easily understand that I had no difficulty in making my selection, for Victor Horsley fulfilled all these conditions, and we were already on terms of personal intimacy. Gleefully did he accept the proposition that we should carry out this work together, and many were the hours which we devoted to it.

In every case the first part of an experiment consisted in exploring by induction currents after the manner of Ferrier the particular area we desired to investigate, and the second part in removing the explored area, re-covering the brain, and sewing up the wound. In these operations we made use of every Listerian practice, including, to our woeful discomfort, the recently introduced carbolic spray—a source of endless objurgations!

To these operations Horsley brought a remarkable amount of surgical skill. Our quadrumanous patients were kept under the best possible conditions, and in most cases made speedy recoveries. It is not saying too much if I add that Horsley obtained from these experiments a surgical experience of a unique kind. This experience he was presently—in his capacity of surgeon to the great hospital in Queen-square—to apply to the alleviation of human suffering in a domain which even the boldest surgeons had not ventured seriously to attack.

There is no better illustration of the mutual benefit which results when surgery and physiology go hand in hand than the history of our early efforts in this field of investigation. The benefit to Horsley I have pointed out. And for myself, I acknowledge with gratitude the debt I owe to my colleague for the opportunity I was afforded of learning the application of Listerian surgery to animal experimentation, a lesson the benefit of which I am more than ever conscious of after nearly 40 years' experience, much as things have changed both in physiology and in surgery since that far-off but never-to-be-forgotten time.

Our partnership was a fruitful one. We were able to extend Ferrier's observations in the monkey's brain to parts which he had not explored, although in this particular he had not left much for future investigation. But the young worker may take it from me who have grown old and experienced in scientific investigation, that if he wishes to discover new thing he will do well to repeat with the aid of moder methods any experiment which has been long accepted as affording the last and most incontrovertible word on the subject. Almost certainly he will find som point which has been overlooked by the origina investigator, and needless to say by those who hav merely aimed at getting the same results. And almost certainly the exception will prove—i.e test—the rule, and he may easily find that which ha been looked upon from time immemorial as scientifi gospel is badly in need of re-editing. In my experienc nothing is so fertile in discovery as going carefull with one's eyes open, and with the aid of new method along a well-worn track. I say with one's eye open—for if they are shut to everything but what on expects to see many a discovery will be overlooked.

It is not my purpose to give an account of ou work on the brain—work which, begun together, wa eventually by force of circumstances carried o independently or in conjunction with other worker One word, however, I would say about a trait in m colleague which, although in no way unfavourab to his character, rendered the actual conduct of ou joint investigation somewhat laborious. He was to energetic. He would think nothing of performin several operations at a sitting, and acquired so muc skill at them that they occupied a relatively sma amount of time. But the operation was one thin the study of the symptoms quite another. Now takes a long time to make a thorough investigati of symptoms in the human subject—although in th case the subject himself can give much assistanc But when it comes to making the same kind investigation in animals, and especially in monkey which are often wild, and the attention of which it always difficult to fix, an unconscionable amount time has to be devoted every day to each case. It happened that just about this time Horsley w leading an extremely busy life. He was surgic registrar at University College Hospital—a positi involving a huge amount of clerical work—and lat assistant surgeon there; professor superintendent the Brown Animal Sanatory Institution; assista professor of pathology in University College; had considerable if not very remunerative private pra tice; and last but not least, was engaged to married. The result of all this was that most of the observations on the operated animals had to be made by his colleague, and when there were several to be examined the amount of time that these occupied every day rendered the duty severe. All the clinical notes thus taken day by day had to be collated and eventually boiled down—a process which involved many prolonged conjoint sessions. Upon the results of this collaboration I need not dwell. Are they not written in the Chronicles of the Royal Society and decently buried in the Philosophical Transactions? May they rest there in peace!

The experience which Horsley had gained in these experiments—commenced in the laboratory at University College, and continued at the Brown Institution—was invaluable to him in dealing with cranial surgery in man, and when the position of surgeon to the Hospital for Nervous Diseases in Queen-square fell vacant Horsley received the appointment. He lost no time in applying the knowledge he had acquired in the laboratory to the operating theatre in the hospital. Paget gives an interesting and humorous account of the first operation he performed there for a cranial tumour. It was upon a Scotsman, was in every way successful, and was witnessed by a distinguished company which included Hughlings Jackson and Ferrier. It was, of course, followed by many others, and these were often attended by eminent foreign surgeons, for Horsley's reputation as a cranial surgeon soon became widespread. The facility with which he used either hand contributed not a little to the dexterity of his operations, and he never under any circumstances lost the sang-froid which is essential to a surgeon.

THE THYRO-PARATHYROID APPARATUS.

Although by the work which Horsley had done upon the brains of monkeys and apes, he had become one of the most skilful and scientific operators upon that part of human anatomy, he was much too all-round a man to confine himself to a single object, and we must next follow his career in another subject —that, namely, dealing with the functions of the thyroid gland—to which he brought equally keen enthusiasm for physiological investigation, and skill n surgical procedure. Like that upon the functions of the brain this also has an interesting preliminary history.

The year before Victor Horsley was born, Moritz Schiff, of Geneva, one of the most active physiologists of the middle of the last century, had published the esults of observations he had made upon animals, he thyroids of which he had extirpated. But at that ime neither physiologists nor medical men were prepared to take much interest in the thyroid, nor ndeed in any of the so-called ductless glands, which now, under another name, occupy so prominent a position both in physiology and in clinical medicine. Schiff's work, therefore, which was not without nterest and importance, passed unnoticed, and the matter was allowed to rest for many years. But ust about the time that Horsley was starting his urgical career, the subject of the thyroid and its unctions had come into prominence on account of he fact that it was becoming the practice amongst urgeons in Switzerland—in which country tumours f the thyroid are common—to remove such tumours ntirely when they were inconveniently large. In uch cases of complete removal serious symptoms ften resulted—symptoms which closely resembled hose which had been described some ten years reviously by Sir William Gull, as a cretinoid condition of adult life, and were later shown by Ord to be ssociated with absence or atrophy of the thyroid; rd applied the term myxœdema to the syndrome. he symptoms resulting from thyroid removal were ecognised by J. and A. Reverdin as resembling those myxœdema, and they gave to them the name perative myxœdema. Th. Kocher, who described hem at about the same time, spoke of the condition s *cachexia strumipriva* or *thyreopriva*, the name by which it is now generally known, although the term operative myxœdema best describes its cause and symptoms. These observations of the Swiss surgeons were published in 1883, and led immediately to a great revival of interest in the thyroid both amongst physicians and clinicians. Schiff himself repeated and extended his old experiments, and many other physiologists took up the subject, interest in which is indeed by no means exhausted even at the present day.

How Victor Horsley came to start experiments upon the thyroid is narrated by Paget:—

> "On Nov. 23rd, 1883, at a meeting of the Clinical Society of London, there was a discussion over a case of myxœdema shown by Dr. Drewitt; and Felix Semon called attention to Kocher's observations and said positively that cretinism, myxœdema, and cachexia strumipriva were closely allied conditions, having in common either absence or probably complete degeneration of the thyroid gland; and that they could hardly be attributed to any other cause. On Dec. 14th, the Clinical Society appointed a committee to investigate the whole subject. Ord was chairman, Hadden was honorary secretary, and Horsley was a member of the committee. It was of necessity that the investigation should include an experimental study of the healthy gland in healthy animals; . . . . and recognising 'the hitherto undreamt of importance of the thyroid gland' they asked Horsley to study it by the experimental method. They needed a physiologist and a surgeon, and they had them in him."

Horsley started this investigation in my laboratory at University College, working at first with Rickman Godlee, who was also a member of the committee. They made several experiments together upon monkeys; we had a room specially prepared and warmed for keeping these animals. But very soon the work was transferred to the Wandsworth-road, Horsley being now professor superintendent of the Brown Institution there, and he found it inconvenient to carry on work in both places. So he continued the investigation alone, and dealt with the results in the lectures which he was expected to give annually at the University of London, the first of these being published in the *British Medical Journal* in January, 1885, and the next in *The Lancet* in 1886. It is somewhat singular that with the exception of two short notes communicated to the Royal Society, he never took the trouble to send the results of these experiments upon the thyroid to any scientific periodical, although they were mentioned in his annual reports to the committee of the Brown Institution, and ultimately in the report of the Committee on Myxœdema, published in 1888. The reason for this silence on the part of an investigator like Horsley, who never in any other subject had the least hesitation in giving his results to the world whenever they were sufficiently definite, was, I imagine, because of a certain indefiniteness and variability in the effects obtained from removal of the gland. For some animals were simply rendered apathetic, with slow movements, a low body temperature, and a general deficiency in vitality; others showed acute nervous symptoms, with muscular tremors; which might pass into fits of greater or less violence, and terminate in death. Horsley himself seems to have thought that these were stages of the same condition. But we now know that the two kinds of symptoms were due to entirely different causes; in the one case the thyroid alone had been removed, and in the other the removal had included the parathyroids. Unfortunately, at the date of these experiments, the parathyroids, although they had been seen and described some years earlier, had not been recognised as organs having a specific function entirely different from that of the thyroid. It was only some years later (1891) that Ernest Gley, the eminent professor of physiology in the Collège de France, discovered this function, and showed that the symptoms of nerve excitation are entirely due to the removal of the parathyroids, and are not seen when these, or some of them, are left intact in removing the thyroid. On the other hand, removal of the thyroid alone without the parathyroids produces all the symptoms of cretinism and cachexia strumipriva.

The fact that when dealing with young animals the parathyroids, unless looked for, and they were at that time unknown, were more likely to be removed along with the thyroid (as age advances, some of them move farther away from the thyroid) accounts for the circumstance that Horsley found most of his young animals died in a few days with violent nervous symptoms. In consequence of this he missed the very important point that the thyroid exerts a remarkable influence on growth and nutrition, including the nutrition of nerve cells, which is indeed now established as one of its principal functions. But we cannot blame him for missing this point, since our knowledge of the thyro-parathyroid apparatus was not sufficiently advanced at the time.

The Pituitary Body.

There is another important endocrine organ to which Horsley devoted a good deal of attention—viz., the pituitary body. He was, I believe, the first to endeavour to determine the effect of removal of this organ, for about 1886 he made one or two attempts to reach and destroy it through the pharynx and base of the skull. The conclusion he arrived at was that it is an organ which is not essential to life. Many years later he repeated these experiments and apparently saw no reason to alter his opinion, although in the meantime a number of other investigators who adopted other means of reaching the gland had come to an opposite conclusion. There is now no doubt that, in most adult animals at least, the loss of the pituitary body or even of its anterior lobe alone is incompatible with life, and had Horsley proceeded to attack the gland by the same (lateral) route as has been employed by most other investigators, a route in which every step of the operation is visible and perfect asepsis can be ensured, he would, I am sure, have obtained the same results. His original method offers many difficulties from the liability to hæmorrhage and sepsis, and from the impossibility of seeing what one is removing when working at the bottom of a deep and narrow hole. Horsley was inclined to regard the results obtained by those who operated by the lateral method as due to interference with the brain; but this could not be so, for exactly the same operation can be performed for exposure of the pituitary, but if it is left untouched no adverse symptoms follow. Moreover, one of my assistants, Mr. Norman Dott, himself a skilful surgeon, has recently devised a method of destroying the gland completely in the cat, by a process of electrolysis, without any exposure or any injury to the brain. The sella turcica is reached by passing a fine trocar, enclosing a carefully guarded needle, along the outer margin of the orbit, and through the sphenoidal fissure. This needle conveys the necessary current and the whole operation occupies only a minute or two. By careful adjustment of the position of the electrolysis needle it is possible to destroy either the anterior or posterior portion of the pituitary. If the anterior part is destroyed, the animal will inevitably die within two or three days, a result precisely similar to that obtained by Paulesco, Harvey Cushing, and others, when operating on adult dogs by the lateral method.[1]

Although Horsley had occasion to perform on the human subject a certain number of operations for removal of tumours of the pituitary, his physiological experience in connexion with this organ had not the same influence in determining the corresponding surgical proceedings in man as had the experiments upon the brain. This was partly owing to the fact that tumours of the pituitary are rare, and the methods for getting at the pituitary in the human subject are different from those employed for animals. Moreover, such tumours are often very slow growing, and are not attended with immediate risk of life; whereas complete removal of the gland is dangerous if not fatal. And with regard to tumours of the thyroid, they can often be successfully treated without operation, and only occasionally pass from the hands of the physician into those of the surgeon. But I have, I hope, said enough about the physiological and surgical work of Horsley to illustrate the subject of this address, the close relationship that should exist between physiology and surgery. Horsley himself laid particular stress upon this relationship. Mr. Paget tells us that when in January, 1911, the first Lannelongue prize—which was to be awarded once in five years to the surgeon who in the previous ten years shall have done most for the advancement of surgery—was presented to him:

> "He spoke a few words of thanks . . . . and said that his own country which had long been under the influence of John Hunter, had later come under the influence of Claude Bernard, who had joined together physiology and surgery. 'That is what I have striven to realise. Unfortunately, if surgical science advances with fair rapidity, its practice progresses slowly. That is because we are held in bondage by traditions from which we have difficulty in freeing ourselves.'"

Clearly he meant by this the supposed dependence of surgery on anatomy, when he himself clearly saw that it is physiology which it must in future depend upon, or only so far on anatomy as mechanical considerations may render necessary.

Lister and Physiology.

I next propose to give you an illustration of the mutual importance of surgery and physiology from the career of the most eminent surgeon of our generation, Joseph Lister. Lister was essentially and fundamentally a physiologist. He was easily the most distinguished pupil of William Sharpey, and William Sharpey was unrivalled as a teacher of physiology This is the more strange, since Sharpey himself did little or no original work in the subject. Nevertheless no one gave greater encouragement to his pupils to conduct physiological inquiries or more sympathy in their researches than did he. The failure on his part to carry out physiological investigations was due to his training. This was wholly anatomical. When he went to study in Germany it was Rudolphi's dissecting room he frequented, not Johannes Müller's lecture room and laboratory. Had he attached himself to the last-named, he would have consorted with all the great German physiological workers of the middle of the last century—Helmholtz, du Bois-Reymond Ludwig, Brücke; or had he gone to Magendie in Paris instead of to the anatomical and surgical schools there, he would have consorted with Claude Bernard and would have become the outstanding physiologica investigator in Great Britain and have occupied the place in London which Bernard occupied in Paris. Bu the tendency of the Edinburgh School in his day was wholly in the direction of anatomy, doubtless owing to the fact that the anatomical chair in Edinburgh had been occupied by a succession of pure anatomists —a tradition which has been handed down to the present day; whereas, although there existed a Chair of Physiology even prior to that of Anatomy rightly known as the "Institutes of Medicine," it was never held by a physiologist until the appointment of Rutherford in 1884, of whom I am myself the unworthy successor. Whatever may be the case now—and we have illustrious examples to the contrary—anatomy in those days exercised an influence upon its devotees which was not favourable to active research and least of all to experimental work. It must further be remembered that Sharpey was actually a lecturer on anatomy in the extramura school of Edinburgh when he was invited to occupy the chair of general anatomy and physiology at University College. Up to that time he had not taught physiology, nor had he received any training in it; although he had interested himself in certain physiological problems, especially those connected with the growth of bone and the action of cilia. It was too late for him to undergo a fresh course o training, and he was busy with his new duties. He had, therefore, to get up his physiology as best he could. The Council of University College would have done well if they had given him a free year to study physiology in France or Germany, but in those days here seemed to be no idea that anything of the kind vas necessary; the governing bodies of universities arely do the right thing in these matters! So Sharpey iad to be content to teach a subject in which he was nly self-trained. The more credit to him that he ecame so successful. For it is certainly due to his eaching, both directly and through his pupils, that he physiology of the latter part of the nineteenth entury became preponderatingly an English science. trust we still remain in the forefront, but we must dmit that other nationalities have during the last ive and twenty years made notable advances and re able to challenge any predominance we may ave had.

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[1] The details of this method will be published in the next number of the Quarterly Journal of Experimental Physiology.

If I have been led away by the reverence I have for is memory to speak at greater length of Sharpey han I had intended, I feel justified in doing so ecause of his intimate connexion with Lister. Lister, ong before he was known as a surgeon, was an xperimental physiologist, and he continued to be ne throughout his career. He had had no opporunity of being trained in experimental work, but e was a born experimentalist and trained himself. Whether he would have done better to have worked vith Claude Bernard in Paris or with Carl Ludwig n Leipzig must be a matter of opinion, but his selfraining had at any rate the advantage of developing is originality. His first scientific investigations vere made with the aid of the microscope—an nstrument with which he had, through his father, he discoverer of the achromatic lens, been familiar rom his earliest days. He was one of the first to emonstrate the existence of a dilatator pupillæ in he iris and to show that, like the sphincter pupillæ hich was already known, the dilatator is composed f plain muscle cells. Many later observers, less kilful or less accurate than Lister, have denied the xistence of this muscle, but his work has been indicated and confirmed by the most modern ethods both of physiology and histology. Shortly fter this he published observations on the arrectores ilorum which confirmed those of Koelliker, and are specially remarkable because he used a new and ow universally employed method—that of microcopic sections—for the investigation. Doubtless the tudent of the present day, familiar with paraffinbaked tissues and mechanical microtomes, would espise the rough mode of preparation used by ister. To use his own words: "A portion of shaved calp being placed between two thin slips of deal, a iece of string is tied round them so as to exercise a ight degree of compression; the preparation is ow laid aside for about 24 hours, when it is found have dried to an almost horny condition. It then dheres firmly by its lower surface to one of the slips, nd thus it can be held securely, while extremely hin and equable sections are cut with great facility any plane that may be desired. These sections, hen moistened with a drop of water and treated ith acetic acid, are as well suited for the investigaon of the muscular tissue as if they had not been ried."[2]

The existence of such cells in plain muscle had been enied by Ellis in a paper published in the Philophical Transactions, although Koelliker had proaced abundant evidence to the contrary. And very student can now easily demonstrate them. ut in those days it was not so easy, and the fact at Lister undertook a difficult investigation and cceeded so admirably in obtaining a definite result aced him at once in the first rank of physiological stologists.[3] It is true these observations were not themselves purely physiological, but their interest entirely so, and had this not been the case it is oubtful if Lister would have spent so much time and trouble over them. It is interesting to remark that both investigations were inspired by the work of Koelliker, who was the predominant histologist of his time, but whose training and early work were physiological. Koelliker was an intimate friend of Sharpey, and it was through Sharpey that Lister made his acquaintance. Incidentally I may be allowed perhaps to mention that it was through Sharpey that I myself made the acquaintance and experienced the constant and kindly encouragement of both Koelliker and Lister.

The distinctively physiological bias of Lister's mind was soon to be evidenced (1) by his work on absorption from the intestine and on the flow of chyle in the lacteals, and (2) by his researches on the vascular changes accompanying inflammation. The first of these researches was made in 1853, while he was still in London, and shortly after he had graduated. Their chief object was to ascertain whether solid particles mixed with the food can be absorbed by the lacteals. He observed these vessels in the mesentery of the mouse, and the conclusion he came to was that no such absorption occurs—a conclusion which has never been modified since. The experiments on inflammation were made, or at any rate completed, after he had been definitely established as a young surgeon in Edinburgh: a place he visited on Sharpey's recommendation in 1853, with the intention of spending a month there; but he became Symes's assistant and eventually his son-in-law, and the month extended to seven years!

Having become conscious of the ignorance of surgeons regarding the earlier stages of inflammation, he set to work to investigate these on physiological lines. For this purpose he made use chiefly of the frog's web, but employed also for confirmatory evidence the vessels in the bat's wing—an object he had learned the study of under one of his most distinguished teachers in University College, also a physiologically-minded surgeon, Wharton Jones, the discoverer of the amœboid movement of leucocytes. As his biographer truly remarks, his work on inflammation "impresses the reader by the beauty and simplicity of the experiments described, the originality of the thoughts, and the soundness of the reasoning. . . . The paper was well received at home and on the Continent, and its conclusions have with scarcely an exception stood the test of time."[4] In the same year Lister published also two other papers in the Philosophical Transactions—viz., "An Inquiry regarding the Parts of the Nervous System which regulate the Contraction of the Arteries," and on the "Cutaneous Pigmentary System of the Frog." Both of these are of great physiological interest and contain new and important observations. It is, however, not to be wondered at that his predominant work, which has revolutionised surgery, should have overshadowed his earlier physiological observations, a fact which Lister himself recognised and regretted. I am not sure in my own mind that he was not prouder of his physiological work than of his contributions to surgery.

Blood Coagulation.

His most important contribution to physiology was when he was very fully occupied with surgical work and teaching. It was upon a subject which must always possess a peculiar interest for the surgeon—the cause of blood coagulation. I know of no better or more precise piece of physiological work than this. All kinds of theories were then extant on this subject; there are a good many still! Dr. Benjamin Richardson, who had found that the addition of ammonia to blood would prevent its coagulation, thought that this furnished sufficient evidence to support the notion that the reason blood coagulates when drawn is

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Quoted from "Lord Lister," by Sir Rickman Godlee, 1917.

[3] The earlier papers on this subject were published in the arterly Journal of Microscopical Science, for 1853; the fuller vestigation in the Transactions of the Royal Society of linburgh for 1857. They are all to be found in vol. i. of his Collected Papers," 1909.

[4] This paper was read before the Royal Society in 1857 and published in the Philosophical Transactions for 1858. The actual mode of causation of the vascular changes which Lister was the first to describe was not explained until many years later, the explanation being furnished by the experiments of Dr. Ninian Bruce, working with Professor Hans Meyer, and published in the Quarterly Journal of Experimental Physiology, vol. vi., 1913.

because exposure to air allows the escape of ammonia. And although the researches of Alexander Schmidt had shown, what modern investigations have confirmed, that coagulation is the result of a chemical reaction between substances dissolved in the blood, the reason why this reaction does not occur in the living vessels was completely obscure; the theory which was most favoured being that of Brücke, which explained the phenomenon by supposing that the living wall of the vessel exercises a restraining influence upon the blood in contact with it—which is evidently not an explanation at all. Lister devised a simple experiment which at once upset both theories, and indicated the real cause of blood coagulation—viz., the contact of blood with foreign matter or with injured or dead tissues. He showed that blood can be kept fluid in a segment of a large (surviving) vessel exposed freely to the air, and could even be poured from one such segment to another so as to allow free escape of any ammonia which might be (but isn't) present; moreover, whilst passing through the air the blood would, of course, be removed from contact with the wall of the living blood-vessel. Nevertheless, such blood remained fluid unless the inner coat of the vessel were injured or unless the blood were allowed to come in contact even within the vessel with a foreign body. Lister showed that it is the presence of the injured tissue or foreign body that determines the chemical reactions which produce the coagulum, and not the presence of the living tissues which prevents such reaction. This fundamental fact was settled for all time by the simple experiment of the so-called "living test-tubes" devised by him. The account of this and other experiments on the subject is to be found in the Proceedings of the Royal Society for 1863; it formed the subject of the Croonian lecture for that year.

Vivisection.

By this time Lister was in the full swing of professional work in Edinburgh, and was giving lectures on the principles and practice of surgery in the extramural school. The principles he taught were physiological, both normal and as applied to disease. He recognised that surgery, if it is to be considered a science at all, must be founded upon and can only make progress by the aid of experiments. His great discovery was so founded. His experiments were made with test-tubes, with animals, with patients. But he would never venture to perform a serious experiment upon man without having ascertained by animal experimentation that it was likely to prove successful and was therefore justifiable. On the subject of vivisection his trumpet gives no uncertain sound. When requested by no less a personage than Queen Victoria to make some public declaration against vivisection, he replies as follows to her private secretary:—

> "I should deeply regret that I cannot see my way to complying with this request, were I not persuaded that my doing so would not promote the real good of the community, which I know to be Her Majesty's only object in the matter. And I feel bound to endeavour to express shortly the reasons for my opinion. With this object I can hardly do better than begin by saying that I have myself often performed experiments upon the lower animals, and that, if I have been privileged in my professional career to do anything for the good of my fellow men, more is to be attributed to these experiments than to any other work in which I have engaged. When they were performed without chloroform, as has not infrequently been the case, they have been done at a very great sacrifice of my own feelings; but the greatness of the object in view has appeared to me to over-ride such considerations. . . . It is sometimes said that, although such experiments may be needful and right for the purposes of discovery, they are not justifiable for the demonstration of truths already ascertained. It would, I believe, be very wrong to draw any such line of distinction. To take a single instance—to debar the student of medicine from having his eyes opened to the truth of the circulation by seeing the blood coursing through the vessels of the living web of the frog's foot, would be undoubtedly a mistake; for no amount of verbal teaching could do for him what a glance through the microscope at that sight at once effects."

And after explaining at considerable length the relatively painless nature of physiological experiments as compared with the cruelties which are inflicted every day for the sake of improving the quality or appearance of food, or even in sports such as fishing, shooting, and fox hunting, he points out that the sportsman is not commonly regarded as cruel because the inflicting of suffering on the hunted animal is not his main object (which is merely the gratification of himself and his friends) and continues:—

> "But surely those who regard this amusement as justifiable are strangely inconsistent if they brand with the epithet cruel the man who performs an experiment upon an animal at great sacrifice to his own feelings and with every care to render the pain as slight as is compatible with the high object in view."

In his evidence before the Royal Commission on Nov. 1st, 1875, he begins by stating that his first experiments upon animals had been made when he was altogether unknown as a person of any sort of reputation whatever:—

> "When I first took in hand to teach others, I felt that there were some points on which I desired more information than I could get satisfactorily from any book, and my first experiments were performed with the object of preparing myself for teaching, while I was not a person of recognised scientific attainments."

With regard to his early experiments upon blood he remarked that they "had the effect of giving me a kind of pathological information, without which I believe I could not by any possibility have made my way in the subject of antiseptics; and that subject, I believe, is becoming recognised as one of considerable practical importance. I have often felt that without the basis which I derived from experiments on the lower animals, I should never have been able to thread my way through the very perplexing and apparently contradictory facts which I met with in the first instance," also that throughout his whole career after that time he had found experimentation on living animals necessary, and that through the medium of that experimentation originally commenced with other aims he was gradually led "to the development of that method of treatment which is now known as the antiseptic system." Further, with regard to his work on catgut ligatures he definitely states that if he had not made experiments in the first instance on animals he would have had to perform them on man; there was no other alternative.

Physiology the Basis of both Medicine and Surgery.

Engrossed as he was with surgery, Lister never ceased to be a physiologist, and to the end of his days was deeply interested in all forms of experimental work. He was scientific to the core. He admitted, as we have seen, that experimental work was the basis of all his researches in antiseptics, and his work in this as in other directions was characterised by meticulous accuracy, a character which is essential for all scientific investigations. First the facts were ascertained by observation and experiment; then marshalled and collated with observations made by others; the deductions checked by yet other experiments; nothing was left to mere supposition. In this way he arrived at the great generalisation which at once transformed surgery from a mere art which might be practised by any ignorant person into a real science which could only be properly advanced by those who adopt scientific methods. Given an adequate knowledge of anatomy—which is essential both to the physician and to the surgeon—the basis of training in both the branches of what is popularly known as the "healing art" must be physiology. Lister would never have arrived at the position he occupies in the history of surgery if he had not been first a physiologist. Doubtless he was fortunate in his opportunity. He came at the right time, just when Pasteur was engaged in the brilliant researches which indicated the essentially parasitic nature of disease. How eagerly Lister seized hold of that opportunity we have heard from his biographer, and his own tribute to the assistance he obtained from the researches of Pasteur is unstinted; although he had begun his own experiments before he had heard of Pasteur's. I do not know of any surgical con temporary of his who could have taken advantage of the opportunity thus offered; at any rate it is certain none of them did so. They all had anatomy at their fingers' ends, but this was the only science which it was then expected they should know, and it did not lead their surgery far along the path of progress.

It is an old tradition that anatomy is the exclusive basis of surgery, but I am happy to think it is every day becoming more of a tradition and less of a practice. Many modern surgeons both in this and in other countries are physiologists as well as surgeons. Physiology has given scientific support to their surgery, and has been in turn materially assisted by it. It would be invidious for me to mention the names of living individuals and in an assembly like this it is not necessary; they are known to most of you. They admit that surgery is based upon experiment; in other words, upon physiology, and that there is no possibility of its advancing in any other way. Like every other science, surgery without experiment must stand still, and no surgeon has any right to experiment upon the human subject if the lower animals are available for the purpose. That those who are learning operative surgery are debarred by Act of Parliament from practising on animals, although permitted to make any experiments they think fit upon human patients, is an incredible piece of folly. Ours is the only country in the world in which so heinous a measure could have been passed into law; the only nation where misplaced sentiment is allowed to displace reasoning, and where the necessities of humanity are subordinated to those of the brute creation. I wonder does the British public fully understand that by the present law no student is permitted to perform any experiment upon an animal with the object of enabling him to do the same operation upon man, and to acquire the necessary skill to do it without danger to his patients. Which of you, I may ask, would like to be the first patient to be operated on even for the so simple operation as the extraction of the crystalline lens? Yet the skill of the operator *must* be acquired by experience, and therefore men, women, and children take the place of dogs, cats, and rabbits. As Sir Rickman Godlee pertinently remarks—

> "The strangest anomaly, as it must appear to our less sanctimonious brethren in the rest of the civilised world, is that our law, while it forbids the granting of a special license to a distinguished doctor to experiment on a chloroformed frog in his own study in pursuit of science, allows anyone who can afford it to hunt a stag to death, or set two greyhounds to course a hare and wager money on the result."

Truly we are a nation of Pecksniffs!

TEAM-WORK.

While it is the case that the progress of surgery must depend upon physiology, it is equally true that the progress of physiology depends upon surgery. Without an adequate knowledge of surgery many experiments which are necessary for the advancement of physiology could not be attempted. I have already given you instances of this, but I will adduce another from the experiments on depancreatised animals which are at present in progress, accounts of which are filling not only the pages of the medical and physiological journals, but even the columns of the daily press. Such experiments can hardly be conducted by one individual. It is not everybody who is endowed, as Lord Lister and Sir Victor Horsley in great measure were, with the requisite knowledge and skill in both subjects to work single-handed. At the present time the importance of team-work, suitably directed, is fully recognised, and this is largely why our knowledge regarding "insulin" has made such rapid advances. Surely such a combination of physicians, surgeons, physiologists, biochemists, pathologists has never before been assembled to conduct any investigation as those who have been working in Toronto. In every combined physiological investigation on animals, one of the team at any rate should be a surgeon, and I can conceive of no more advantageous training for a young surgeon than that which he will obtain by taking part in such an investigation. Examples of the mutual value of coöperation between the surgeon and the physiologist could easily be multiplied, but I hope that those I have put before you are sufficient and may have some influence in promoting that close intercourse between surgery and physiology which is essential for the progress of both branches of science.

I have often wondered what difference it would have made to my own life if Joseph Lister had been elected to the chair of surgery in University College in 1866 instead of John Marshall. It is easily the worst mistake that the Council of the College ever made. The echo of the election was remaining when I joined the College in the winter of 1866 as a very young student. I came to know Marshall very well. He was a good friend to me, and I had a great respect and liking for him. But he was the most uninspiring teacher that I ever sat under. His systematic lectures were desperately dull, and being given late in the afternoon with a monotonous, musical utterance, most of his audience were soon fast asleep; I was one of the sleepers! Nor was his clinical teaching any better; his operating was slow and the reverse of brilliant. Whether he ever fully embraced Listerian methods—at the time I joined they were unknown outside Glasgow—I do not certainly know, but I much doubt if he did so. He was not a physiologist, although he published a text-book of physiology, largely founded on his notes of Sharpey's lectures; I do not think it went through more than one edition. Lister's biographer speaks of Marshall as scientific and a good teacher, but these are terms which I cannot endorse. He had a charming personality, and as he was already on the staff of the hospital he obtained the chair in preference to Lister, who had been many years away from the institution and was unknown both personally and through his work to most of the staff. John Marshall became a Fellow of the Royal Society and President of the Royal College of Surgeons. There is an admirable bust of him at Lincoln's Inn Fields. But Lister's name will still be famous when Marshall's is forgotten.

It has always been a source of regret to me—as it must be to all alumni of University College—that Lister's work was not carried out at his old school. But the fates ordained otherwise, and to Glasgow and Edinburgh must be conceded the credit of nursing the new surgery into vigorous existence. I believe it would have made a great difference in the rapidity of the spread of the new doctrines if they had emanated from London sooner, and Lister no doubt thought so himself, as his subsequent migration to London showed. And the atmosphere of University College—if not of the Hospital—was distinctly scientific, and at any rate amongst his scientific colleagues there he would have received full encouragement. It was in 1866 that Lister applied for the appointment—less than a year after he had started his experiments on antiseptics in Glasgow. It was 16 years (1882) before Listerism came into general use in hospital surgical practice in London. The change occurred when Horsley was still a student and long after my own time. And if I have wondered what a difference it would have meant to me, a mere physiologist, to have had a surgical training under Lister, how much more would it have meant to Victor Horsley if he had come under the direct influence of this great surgeon. Instead of being Marshall's, he would have been Lister's house surgeon, and how greatly he would have benefited by the close relationship with Lister and how keenly he would have followed and assisted in his experiments those who best know both men can appreciate!

It is easy to speculate on the "might have beens"! Sufficient to know that as soon as he came into his own Horsley was foremost in his adoption of Listerian methods, and it was in consequence of this that that particular combination of surgery with physiology which I have given you as my first illustration of the mutual benefits they confer on one another came about. If Lister had come to University College in 1866 I should have learned his methods from the master himself, but I should in all probability have missed the opportunity of conjoint association with the colleague whose memory we are assembled to-day to commemorate, and whose loss not only to physiology and surgery, but to the whole nation, will be felt for many a year.

ENCEPHALITIS LETHARGICA:

SOME OBSERVATIONS ON A RECENT OUTBREAK.*

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It is now six years since von Economo drew attention to the occurrence in Vienna of a disease which had hitherto, in this generation, escaped record, with the exception, as it would appear, of certain isolated and sporadic cases; several of the latter were described about the years 1903, 1907, and 1913,[1] but their significance was missed. There was an outbreak in France at the same time as the Vienna epidemic, but its nature appears to have escaped attention at the time. Since 1917 the disease has spread pandemically throughout the world. It has become in many places as common as enteric fever, though as fatal as unmodified small-pox; its clinical manifestations are protean. The sequelæ and residua are frequent and severe, and render the individuals affected useless to the community. The problem of its prevention is as yet unsolved. It was stated,[2] as late as March this year, that "it would appear as if the disease had spent its epidemic force during the winter of 1920–21, and there was reason to think that it had become less malignant in its clinical manifestations." This is far from being the case, for there have been recrudescences this winter in our two principal western seaports—namely, Glasgow [3] and Liverpool—as well as in New York and other parts of America, which have exceeded in severity the previous outbreaks; as many as 88 cases have been notified in New York City in one week in February.[4] Czecho-Slovakia and Sweden, among European countries, have also suffered severely.

Incidence in Liverpool.

This paper is mainly based on 127 Liverpool cases, the great majority of which have come under my personal observation, and of all of which full notes have been kept. The numbers of cases notified in Liverpool in successive years from 1919 onwards have been 2, 17, 27, and 5. Up to the end of April this year 76 cases have been reported—more than the total for the antecedent four years. Taking the onset of the disease, the cases reached a maximum in the last week of January. Moreover, during the same period about 30 cases have been reported in the districts immediately adjacent to Liverpool, and having a population aggregating some 500,000 persons.

Prior to this year cases mainly occurred in little groups associated in time and space. This year cases have been widespread, occurring simultaneously throughout the city and surrounding areas; the conflagration occurred in a population already widely infected, so it would seem, but yet localised to the vicinity of Liverpool.

Within the last 12 months there has been a change in the type of the disease, which has become more severe and oftener fatal, the fatality rates for the years 1920 onwards having been 12, 22·5, 40, and 39 per cent. respectively. The fatality rate for the last year and a quarter is double that for the preceding two years. These rates compare favourably with those for the country generally, but this is perhaps due to more complete notification in Liverpool, as in other teaching centres. It must be recognised that the clinical type of the disease has somewhat altered, and that the cases which from the prominence of the feature of lethargy led von Economo to name the disease encephalitis lethargica and evoked its popular paraphrase of "sleepy sickness" now form but a portion of the whole; these terms are misnomers. This change of type occurred in Italy and France as early as 1919. In 1921 the majority of the cases occurring in Liverpool (81 per cent.) could still be classified as "oculo-lethargic" in type, and the most prominent symptoms were (*a*) lucid somnolence—i.e., lethargy from which the patient could be roused; (*b*) mask-like facies more or less marked and expressing the patient's mental apathy; (*c*) voice changes, the voice like the face often becoming tired, expressionless, and toneless, though thick and slurring speech is not uncommon; and (*d*) eye signs, especially early and transient diplopia, semi-ptosis, nystagmus, squint, fixation, inequality or irregularity of the pupils, and cycloplegia. Other paretic signs, such as facial paresis or dysphagia, might be present. Constipation was common; the most prominent symptoms were on the side of defect or depression of function—i.e., lethargy, somnolence, and paresis. Nevertheless, tremors, jerky movements or delirium were often added to the picture, and in five out of 17 cases notified in 1920 myoclonus, general convulsions, or choreiform movements were present.

Altered Type of the Disease.

This year the picture has considerably changed. Less than half the cases—i.e., 45 per cent.—can be classified as oculo-lethargic owing to the occurrence of lethargy (usually associated with ocular paresis) at some stage, the remainder have been frankly myoclonic (14 per cent.), choreiform (25 per cent.), or psycho-motor (16 per cent.) in type. Instead of lethargy there was often extreme restlessness and excitement, sometimes delirium of a wild and unrestrainable type; instead of somnolence there was prolonged sleeplessness; instead of or in addition to paresis there was myoclonus (80 to 100 contractions per minute), or other form of hypermotility, often associated with severe pains; whole groups of muscles—e.g., of the shoulder girdle or of the diaphragm and abdominal muscles—may be affected, and a coördinated series of movements may be performed. Many cases present irregular jerky movements or twitchings, and these merge into the cases presenting choreiform movements in which chorea gravis is closely mimicked, except that the movements persist during sleep. Some of these unfortunate persons present symptoms of an extraordinary type; one boy—brother of a lethargic case—was described as leaping from all fours into the air, the movements resembling those of the mechanical toys sold by pavement vendors as "jumping beetles." Another boy when seen by me had both eyes rolling with great rapidity in one direction, his tongue rolling in his mouth in the opposite direction, the while the remainder of his face was contorted by a ceaseless succession of grimaces. He was in a state of extreme terror which was clearly depicted on his face. If asked a question he would answer rationally and then resume the grimacing. A most distressing symptom in some cases was tachypnœa—a respiratory rate of 80 per minute for a fortnight or more in two cases.

One of the characteristics of the disease, especially of the recent cases, is the frequent occurrence of delirium of an occupational form. There is disorientation both as to time and space, somewhat as may happen in delirium tremens; the person thinks he is or ought to be carrying on his ordinary occupation. A painter continually performed the movements of painting; a sailor out of work got up in the middle of the night to look for work; a servant girl got up at a similar hour and lit the kitchen fire, only realising the absurdity of the action when it was completed; a child whose duty it was to look after a baby rolled up a bundle of towels and nursed them; a ship's quartermaster, when surrounded by anxious relatives, believed himself to be in the saloon of the ship among the passengers. It is, however, often a feature of the delirium—as of the lethargy—that the patient can be roused to reason for a brief period by a sharply put question or command.

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* A paper read before the North-Western Branch of the Society of Medical Officers of Health.

The whole aspect of the disease has developed in the direction of hyperactivity of the brain rather than depression. Even the cases classed as oculo-lethargic more often than formerly present at some stage of the disease, the features of sleeplessness, excitement, delirium or hypermotility. The occurrence of myotatic irritability, or of exophthalmos, of vertigo, or of waxy flexibility, and occasionally scarlatiniform or purpuric rashes, have also been noted here. In describing a case one frequently finds oneself employing terms implying the imperfect development of a sign or symptom such as semi-ptosis, transient paresis, nystagmoid movements, and so forth.

Difficulties of Diagnosis.

Certain cases give rise to special difficulty. Tumour or abscess of a "blind area" of the brain is one of the most difficult to distinguish, though the ophthalmoscope assists greatly; but even with this aid the diagnosis may be in doubt; optic neuritis may be present in encephalitis lethargica and absent in cerebral tumour. Examination of the cerebro-spinal fluid may be of considerable value; cerebro-spinal fever and syphilis may be excluded by cytological examination and by the Wassermannn test; in encephalitis lethargica the cells present are lymphocytes and few in number. Separation from tuberculous meningitis may be difficult, and here the estimation of the sugar content of the cerebro-spinal fluid is of great assistance—the normal content is about 60 mg. per 100 c.cm.; in encephalitis we have not found it lower than 68 mg. and the average is about 75; in tuberculous meningitis it is always below 60 mg. In two recent cases of the latter disease, which were notified as encephalitis lethargica, it was 43 mg. in the first case, and in the second was given on two examinations as "sugar much reduced" and "sugar absent," tubercle bacilli being found at the second examination. A tuberculous encephalitis may be otherwise quite indistinguishable. We are much indebted to Dr. R. Coope, who has carried out the estimation in a number of cases. It is essential that the estimation of sugar should be made by a competent bio-chemist, and that the fluid be examined promptly, especially in summer. Mild or abortive cases, especially in children, present great difficulty, and there can be little doubt that many of these cases occur but escape observation.

Residua and Sequelæ.

One of the gravest aspects of the disease is the frequency of residua and sequelæ. Not only is the mortality heavy but in a high proportion of cases the brain is permanently damaged. The sequel noted most frequently is "Parkinsonianism" or symptomatic paralysis agitans, from which disease it is distinguished by its occurrence in persons aged 10 to 40 years old, as a rule, and by the absence of the pill rolling movement. The picture presented by the combination of a rigid, mask-like face, slow speech, drooling of saliva and anthropoid gait, &c., are very characteristic, if not pathognomonic, and often enable a diagnosis to be made retrospectively. Other residua are myoclonic and also slow rhythmic movements; psychoses, such as dementia præcox; and alterations in character and temper, a well-behaved child becoming a "perfect little monkey." One of the conditions seen has been an inversion of day and night, the person being awake all night in a restless and excited condition and only dropping off to sleep towards morning and may then spend the greater part of the day sleeping. These sequelæ may begin to develop immediately after apparent recovery from the acuter symptoms, or may not appear for one, two, or more years.

Relapses.

Another serious feature is a liability to relapse, the acute symptoms being reproduced; the recurrence has usually been at the time of year when the disease is most prevalent—one case of the series relapsed two years after the first attack. An analogous event is the occurrence of two or three cases which only became acute this winter, but gave histories of ill-defined nervous disease going back to the preceding summer. Another patient, a boy of 12 years, who had developed a well-marked nystagmus exactly 12 months before, underwent a definite attack in February of this year. These cases point to climatic changes markedly affecting the susceptibility to the disease. Another case in point is that of a sailor who went on a voyage to the West Indies, lasting five weeks, during which time the crew did not leave the ship. He fell sick with encephalitis three days before reaching this port. Here we must presume the infection was latent on the vessel until she returned from a warm climate to a cold one. The sudden change of temperature apparently increased the susceptibility to the disease. This phenomenon has often been observed in the case of beri-beri; in vessels so affected often no cases will develop until they reach cold weather, when a considerable number will fall ill in rapid succession. Undoubtedly the virus of encephalitis may persist for prolonged periods, and recurrence of symptoms may perhaps be associated with recurrence of infectivity. In view of the liability to residua and relapses prognosis must be most guarded.

Epidemiology.

The earlier reports laid stress on the sporadic character of the disease and the scarcity of multiple cases in a family. It appeared as if the susceptibility to the disease was very low and that carriers were probably numerous. The outbreak in the Derby girls' home, in which 12 persons (of whom five died) fell ill in a population of 22 persons of susceptible age, pointed to the possibilities of the disease. Of like character appears to have been an outbreak in an asylum at Mulheim last summer. Here 28 cases with 13 deaths occurred in 20 days, six being nursing sisters and two doctors. John and Stockebrand, who reported[5] the outbreak, considered that it was not one of encephalitis lethargica but a new disease; basophil stippling of the red blood corpuscles was present in all cases. Botulism was excluded. Dysphagia and ophthalmoplegia were frequent symptoms; the outbreak was probably one of encephalitis lethargica of an aberrant type due to a virus of enhanced virulence. Fyfe[6] has described four ambulatory cases in a school. Kling and Liljenquist[7] have described an epidemic in Lapland, from 7 to 45 per cent. of the inhabitants of the stricken villages being affected; in one household all the members were affected. Cases of simple malaise with little or no focal symptoms were numerous.

In all these outbreaks abortive or larval forms have been more or less numerous. It is probable that there are a considerable number of missed cases even of the typical form, as the disease is by no means always recognised, and it would appear from the instances to be cited that case-to-case infection is not infrequent.

A fatal case occurred on Nov. 27th in a male aged 21 years. His sister, aged 13 years, who had previously suffered from chorea, fell ill with what appeared to be a relapse about Christmas. On Jan. 31st she became worse, her temperature rose to 100·5° F. and diplopia and severe headache were complained of. An acquaintance, a boy of 15 years, who lived in the same street, was taken ill on Dec. 26th with a typical lethargic attack and was removed to hospital on Jan. 7th. On Feb. 2nd a case occurred in the immediate vicinity of the street, but no history of contact could be obtained. On March 29th one of the school medical officers drew my attention to a child aged 7 years, who lived in the next street, and who had been suffering from lethargy since Feb. 15th. Inequality of the pupils was still present, and the child displayed a change of temperament; she had used abusive language to her mother and threatened her with a knife, though previously of a quiet disposition. This child was acquainted with the family of the first two cases. Here we have, in a very small area, a series of five cases of which four were acquaintances. Another couple of cases in a family have already been referred to; a case had previously occurred in the same street a few doors off, but there was no direct communication with them.

A railwayman was taken ill with symptoms of neurasthenia last Christmas. On April 16th he suddenly developed an acute choreiform attack which has since proved fatal. Another railwayman, well known to him, who lived in the next house, but had been ill from September to December with abdominal pain and vomiting, in December developed diplopia, choreiform twitchings, and delirium, and was sent in by his medical attendant as a case of encephalitis lethargica to an institution where he died on March 29th. Whether infection was derived by the first case from the second, or vice versa, is difficult to say, owing to the long latent periods in both cases.

A teacher at an elementary school was taken ill on Feb. 8th. She returned next day to her home outside Liverpool, and I am informed that she suffered a typical lethargic attack. In the same week her four co-workers in the infants' department were affected with severe headache, nausea, and drowsiness, but no catarrhal symptoms. One of them suffered from a temporary but marked dimness of vision, probably due to a cycloplegia. There is evidence here that personal case to case infection is not infrequent, and that missed cases and mild and abortive cases, also cases during the sometimes prolonged latent period, are factors in the spread of the infection. It is probable that if all the mild and abortive cases were known we should be less inclined to speak of the sporadic distribution of the others.

Susceptibility.

There are clearly great variations in the susceptibility to the disease. The susceptible age is especially the decade from 10 to 20 years, though among this series are cases aged from 5 months to 70 years. The disease, therefore, differs from other notifiable diseases in that the greatest number of cases occur at an age when practically all infectious diseases, including epidemic encephalitis tself, are least fatal. This inverted relationship is well shown in the figure, drawn mainly from statistics given in the Ministry of Health's recent report.[8] There is no special sex liability, though pregnant women appear to be specially susceptible; three were affected this year, but their offspring were not. Choreiform cases may be very difficult to distinguish from chorea gravidarum. Seasonal influence is very marked; cases begin to appear about October or November, increase in December, and reach a maximum about the end of January or beginning of February. For reasons already given, this seems to be due to an increased susceptibility of the individual. The small summer outbreak of 1920 appears to have been exceptional.

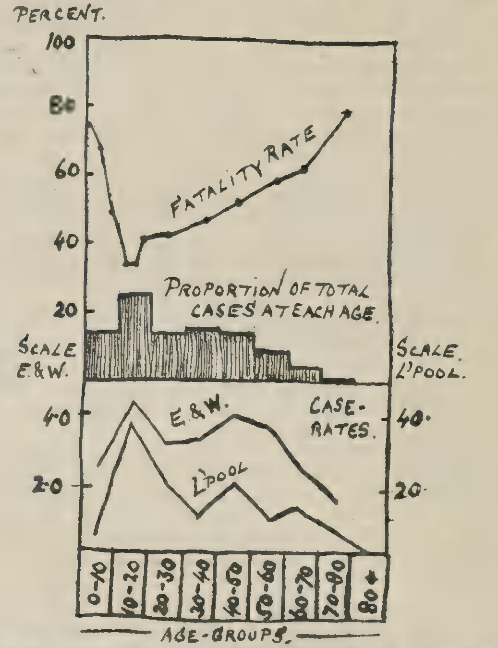

Chart based mainly on statistics given in the Report of the Ministry of Health, No. 11 (1922), showing inverted relationship of age incidence and fatality of encephalitis lethargica.

Previous injury to the brain, &c., appears strongl to predispose. Three cases had recently suffere from a fairly severe blow on the head. One patien had a long-standing dorsal kyphosis. Another ha suffered from chorea. In still another case a girl wa taken ill the day after the extraction of a number o teeth under anæsthesia, which animal experiments show definitely to precipitate an attack. Encephaliti seems to predispose to certain secondary invaders apart from the late occurrence of broncho-pneumonia in two cases diphtheria developed, in one scarle fever, and in another erysipelas. Septic infections ar rather frequent. In two cases the first symptom were those of pneumonia.

Association with Other Diseases.

There is still some discussion as to whether epidemi encephalitis is a specific infectious disease. The ag and seasonal incidences clearly demarcate it fron poliomyelitis. The views expressed by Crookshanl and others that it has some connexion with influenz find no support in the cases under review.

In only four of this year's cases was there history of influenza within six months preceding th onset, and two, both from the absence of catarrha symptoms and on the admission of the medica attendant, were not genuine influenzal attacks, bu merely the onset of encephalitis with pyrexia but n localising symptoms. The extensive wave of influenz during the spring of 1922 was accompanied by n corresponding increase of encephalitis, but rather th reverse. In Liverpool, if there is any relationshi between the diseases it is inverted, as encephaliti would seem to prevail mostly in years when influenz is in abeyance, as in the present year. The productio of an encephalitis resembling Economo's disease, an *not* a meningitis caused by Pfeiffer's bacillus, whe the filtrates of influenzal sputa are intrathecall injected into rabbits, requires confirmation, and doe not appear crucial in any case.

Until more definite evidence is forthcoming th association of influenza and von Economo's diseas may be regarded as fortuitous or non-existent. What then, are the factors that have produced the presen pandemic ? Has some local exaltation of the virulenc of the organism—as, for example, happened at Derb and ex hypothesi at Mülheim—produced a virulen strain, for the spread of which the world war provide most favourable conditions, notably the unprecedente movements of the millions of troops ? In that cas are we to conceive that, prior to the present pandemic invisible epidemics affected the population and presumably immunised them, but only here and there where extremely susceptible individuals were attacked produced recognisable cases ? But the shape of th curve of age distribution of cases is against an hypothesis of such a widespread immunising epidemic unless that immunity produced were but of shor duration ; this might well be, though it would brin this disease into sharp opposition with most of th other ectodermoses—e.g., small-pox, chicken-pox, an poliomyelitis ; and yet vaccinia, which is so closel allied to variola, produces an immunity which fade with the lapse of time.

Or, on the contrary, is it the infectivity of th organism that has increased ? Or have infectivit and virulence been simultaneously enhanced ? A least it is clear, seeing that we are dealing with world-wide pandemic, that it is *not* merely due to diminished resistance on the part of the human host though this may have been a factor in the origina alteration of the virus of the disease.

Whatever the origin of the disease, we are witnessin an epidemic apparently affecting a virgin populatio —an epidemic which, further, appears to be in cours of evolution. The besiegers of the castle are alterin their tactics in full view of the besieged. This is a epidemiological event of sufficient infrequence t warrant the closest attention being paid to it.

My thanks are due to Prof. E. W. Hope for permission to publish these observations, and to th medical men in all the Liverpool hospitals and als in general practice who have freely permitted me to visit and make notes of their cases and have provided me with detailed information concerning them.

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TWO CASES OF UNILATERAL ŒDEMA WITH ALBUMINURIA.

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THE following cases of unilateral œdema with albuminuria afford considerable opportunity for discussion.

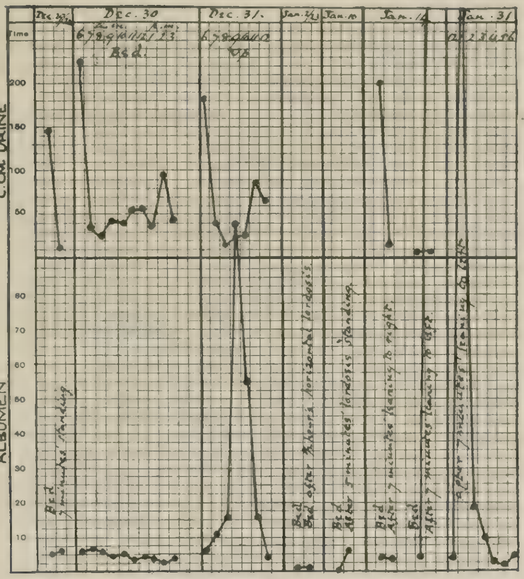
CASE 1.—In August, 1922, a teacher, aged 40 years, came to consult me complaining of swelling of the left foot of six years' duration, which only gave her serious inconvenience in the hot weather. Very occasionally the right foot was also a little swollen. For the same period she had been feeling tired and had suffered from headache. Her doctor informed me that the urine invariably contained albumin, and he called my attention to the presence of a systolic murmur at the apex of the heart. On examination there was definite œdema of the left foot. There were no visible varicose veins, and the right foot was free from œdema. The urine contained a haze of albumin, but no casts were to be seen in the centrifugalised deposit. The pulse was slow and regular and the heart was not appreciably enlarged, though the apical systolic murmur was well marked. The diastolic pressure was 76, the systolic 142. I made some entirely unsatisfactory suggestion as to the possible presence of deep-seated varicose veins, but I realised that I had in no way solved the problem of the diagnosis, and put the case aside in my mind for future reference should occasion arise.

CASE 2.—Towards the end of December a girl, 19 years of age, was sent into one of my wards in the Birmingham General Hospital with œdema of the left foot and albuminuria, the former of nine years' duration. The right foot was said to be occasionally slightly swollen, though no œdema was seen during her stay in hospital, and she volunteered the statement that the left-sided œdema was worse in the summer than in the winter. The heart was normal, as was the blood pressure for the age, and no casts were at any time discovered in the urinary deposit. There were no varicose veins.

For the first few days the patient was kept in bed, and the œdema of the left foot gradually subsided, though it invariably returned in the upright position. The urine in bed contained only a trace of albumin. A series of observations were then made with regard to the albuminuria, the results of which are recorded in the chart (Fig. 1). The albumin measurements are made in terms of the "unit" of albumin, slightly modified, recently described by me in a paper on orthostatic albuminuria[1]; a brief account of the method is appended at the end of this communication. The "unit," as I now make it, is an exceedingly small quantity, and amounts, I believe, to about 0·002 per cent. of dried egg albumin, or a little less, but I do not claim for it any absolute value. The upper series of curves record the volume in cubic centimetres of the specimens of urine examined.

On Dec. 29th the urine passed in bed contained 5 units of albumin. The patient then stood upright for 7 minutes, got back to bed, and passed urine again. This specimen contained only 6 units of albumin. On the 30th hourly specimens were passed in bed from 6 A.M. to 3 P.M., 10 oz. of fluid being taken at 6, 8, and 10 A.M. and 1 P.M. The urine excretion shows a considerable failure of diuresis, and the curve of excretion somewhat resembles that which I have described as often met with in cases of orthostatic albuminuria. The albumin content varied only between 3 and 6 units. On the 31st she was up and about the ward from 6 A.M. to noon, passing urine at intervals of an hour. The quantity of albumin steadily increased, until at 9 o'clock it amounted to a thick cloud (100 units). It then as steadily diminished, and at noon only 4 units were measured. The quantity of urine showed but little relation to the amount of albumin contained. These observations were repeated a few days later with much the same result, although the albuminuria of the upright position was not quite so large as before, but again it showed the striking early rise, with a drop towards middle day, and this was noted on several other occasions. The larger degrees of albuminuria were therefore mainly of the orthostatic or postural variety, although it is noticeable that the bed urine was seldom free from protein, that the big rise in the albumin excretion always took two or three hours to develop and came to an end by noon, and that the response to 7 minutes' standing was extremely slight.

FIG. 1.



Case 2.—Albumin measurements in units, and volume of specimens of urine examined.

The question of a possible lordosis was then investigated. On Jan. 2nd the patient lay in bed in a position of artificial lordosis for the space of half an hour. The urine, before and after the experiment, contained only 1 unit of albumin. She then stood for five minutes in a position of extreme lordosis. The urine passed immediately afterwards contained 5 units, a much smaller amount than is generally produced in this position in cases of orthostatic albuminuria. An X ray photograph of the spine showed complete absence of lordosis and a marked lateral curvature with the lumbar convexity towards the left. The latter was obvious to external examination.

I was aware that Vorpahl[2] had described a case of orthostatic albuminuria in a patient with lateral curvature in which catheterisation of the ureters had shown that the albumin came from the right kidney only, and, although I did not feel that this procedure was justified in my own case, I thought that some light might be obtained on the question by further postural observations.

On Jan. 14th the patient passed urine in bed containing 4 units of albumin. She then stood for 7 minutes leaning well over towards the right, so as to accentuate the lumbar convexity of the spine. The urine at the end of the experiment contained rather less albumin than before. She then stood for the same time leaning in the opposite direction, with the result that the urine passed immediately after getting back to bed was almost solid with albumin, no less than 600 units being measured. On Jan. 31st the observation was repeated with much the same result. She remained up, and an hour later the albumin had fallen to 18 units, and an hour later still to 10. For the next three hours the urine was almost free from albumin.

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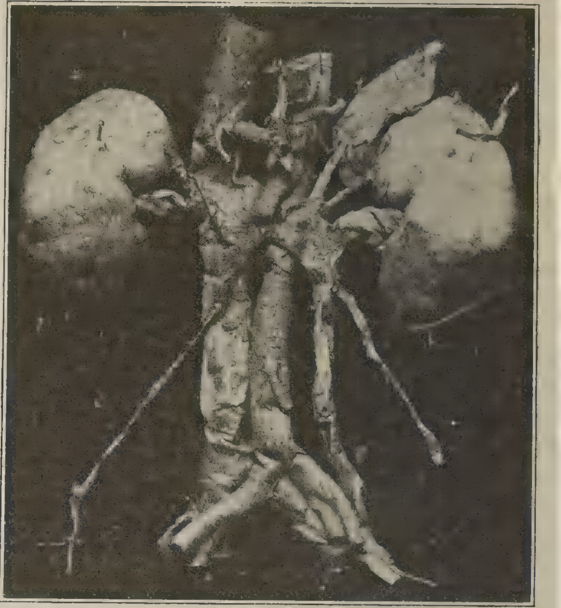
[1] Quarterly Journal of Medicine, January, 1923.

[2] Berl. klin. Woch., May 2nd, 1910.

Although the final proof of catheterisation of the ureters is not forthcoming, it seems to me that these experiments afford good reason for believing that the albumin was coming from one only of the two kidneys, but which of the two is involved must remain a matter of uncertainty. It is to be noticed that in Vorpahl's case, in which the lumbar convexity was apparently towards the left, the albumin was found to be coming from the right kidney. But Dr. Parkes Weber [3] has called attention to several observations showing that in orthostatic albuminuria the albumin not infrequently comes from the left kidney only, and I think that the left-sided œdema in my own case makes this a probable assumption. The case to be quoted below also supports the left-sided origin of the albuminuria.

The question of the relationship between the œdema and the albuminuria now arose for consideration. It will be remembered that in both my cases the œdema was practically confined to the left foot and leg, and Dr. Weber [4] refers to a case described by R. Ehrmann [5] of a young man, aged 20 years, with albuminuria and chronic œdema of the left leg, in which catheterisation of the ureters showed that the albumin was coming from the left kidney only. I know of no other recorded case, and one must assume, in the absence of evidence to the contrary, that there is some special reason for the limitation of the œdema to the left side. When I showed my case at the Midland Medical Society [6] the suggestion was made that there might be a single large kidney, in some way causing venous obstruction, but this suggestion is negatived by the fact that I and some of my colleagues have felt both kidneys in their normal position. Being unable to devise for myself any explanation of the association, I referred the problem to Prof. J. C. Brash, and he at once proposed an exceedingly ingenious and, as it seems to me, quite possible solution of the difficulty. Prof. Brash informs me that there is frequently a small vein running vertically between and connecting the left iliac and renal veins, and that this vein represents either the left post-cardinal or the left supra-cardinal embryonic vein.[7] Sometimes this vein is found of larger size, and in these cases the post-renal portion of the inferior vena cava may be correspondingly diminished. Indeed, occasionally this portion of the inferior vena cava may be entirely transferred to the left side, and under these circumstances the whole of the blood from the lower extremities must pass into the left renal vein in order to reach the general portion of the vena cava. Prof. Brash suggests that if the post-renal portion of the inferior vena cava were in this way duplicated to a considerable extent, so that the blood from the left leg, and perhaps some from the right leg, passed into the left renal vein, then any obstruction of the latter would tend to produce an albuminuria with œdema of the left lower extremity, and occasional œdema of the right foot also. The accompanying photograph (Fig. 2), for which I am indebted to Dr. J. F. Brailsford, is made from an anatomical preparation lent by Prof. Brash for reproduction in this paper, in which such duplication is present. If this condition were carried a little further, I think that an adequate explanation of the association of left-sided œdema with albuminuria would be forthcoming, assuming the existence of some obstruction of the left renal vein. The simultaneous occurrence of this anatomical peculiarity with a lateral curvature—again assuming that the curvature is the cause of the venous obstruction—would, of course, be a rare event, but these cases must be very rarely met with if it be really true that up to the present time there is only one on record. Whether albuminuria often occurs in cases of lateral curvature I do not know. A few cases have been kindly sent me by my surgical colleagues, and in only one was albumin present in the urine. In that case a slight cloud was found on the first examination, but on a subsequen occasion neither standing in the upright position, no leaning to either side, produced any albumin. Th cases are, however, too few in number for any definit statement to be based upon them. The anatomica explanation suggested above is, of course, only a surmise, and demonstration of its truth or the revers must await the opportunity of post-mortem examination. It would be interesting to know whether, in th cases of orthostatic albuminuria with albumin comin only from the left kidney, to which Dr. Parkes Webe calls attention, there was any lateral curvature of th spine.

Fig. 2



Photograph by Dr. Brailsford of anatomical preparation lent by Prof. J. C. Brash, showing duplication of post-renal portion of inferior vena cava.

Even if this be the correct explanation, the problems raised by my two cases are not at an end. Both my patients volunteered the statement that their œdema was definitely worse in the summer, and I have recently heard that, during my temporary absence from hospital, the second patient came up complaining of a fresh increase in the œdema (June, 1923). I have not, however, had an opportunity of confirming this by actual observation. Increased sweating might account for an apparent increase in the albuminuria, if it occurs, but it is difficult to see how that can be invoked as an explanation of the increase in œdema. This new type of "cyclical variation" is difficult to explain, as is the marked tendency in my second case for the albuminuria to occur in large quantities for a brief period after getting up. In the more typical cases of orthostatic albuminuria it is well known that the albuminuria may come to an end in the late afternoon, and in the paper previously referred to[1] I have brought forward some evidence to show that this is not due to an adaptation to the upright position gradually acquired in the course of the day. But in none of the cases of which I have records have I come across this persistent isolated rise in the albumin output taking place a few hours after getting out of bed. Why the effect of the upright position should take from two to three hours to establish itself I do not know, but the subsidence in the morning of Dec. 31st and in the afternoon of Jan. 31st does suggest that it may here be a matter of adaptation. Again, the œdema in my first case did not set in until the patient was 33 or 34 years of age, and had only been present for 10 years in the second. In the latter the scoliosis may possibly have been of recent origin, but I doubt if such an explanation would be likely to apply to the elder of the two patients, and again I do not know that in that case any scoliosis was present. In the paper already quoted I have given some reasons for thinking that orthostatic albuminuria is not purely mechanical in origin, and that in many cases at any rate some slight renal damage has probably occurred. It may be noticed that my first patient had complained of feeling tired and of headache during the period over which the œdema had lasted, but there was no history of any preceding illness.

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[3] British Journal of Children's Diseases, June, 1922.

[4] Medical Press, March 7th, 1923.

[5] Berl. klin. Woch., 1911, xlviii., 496.

[6] The Lancet, 1923, i., 386.

[7] Huntington and McClure: The Development of the Veins in the Domestic Cat, &c., Anat. Record, vol. xx., December, 1920.

I may conclude my paper by briefly describing the method of albumin measurement adopted in constructing the above chart. The method is described in detail in the *Quarterly Journal of Medicine*[1] and is based upon the comparison of the coagulated albumin with a standard haze.

Three stock solutions are used: (1) N/500 barium chloride solution in distilled water; (2) N/500 magnesium sulphate solution in distilled water; and (3) distilled water, to every 100 c.cm. of which are added 0·04 c.cm. of saturated picric acid solution in distilled water and 0·02 c.cm. of freshly made 0·2 per cent. Bismarck brown. Solutions 1 and 2 are kept in bottles previously treated with strong hydrochloric acid and a crystal of thymol is added to prevent bacterial growth.

In order to produce the standard haze, which constitutes the "unit" of albumin, half a cubic centimetre each of solutions 1 and 2 are mixed together in a flat-bottomed tube of thin glass, 15 cm. in length, with an internal bore of 1·1 cm., made for me by Messrs. Philip Harris, of Edmund-street, Birmingham. The mixture is allowed to stand for five minutes, and 8 c.cm. of solution 3 (5 c.cm. in the original paper) are then added. The albumin estimations are made by measuring a known quantity of the boiled albuminous urine, with the addition of a few drops of saturated salicyl-sulphonic acid solution, into another tube of the same size, and diluting with water pigmented as in solution 3 until the hazes in the two tubes match one another, care being taken that the degree of pigmentation in the tubes is kept as nearly as possible the same. In dealing with a heavily albuminous urine, at least a tenth part of the salicyl-sulphonic acid solution must be added to the urine, and this dilution must be allowed for in the calculation. The number of dilutions needed in order to match the two hazes gives the measure of the amount of albumin contained in the urine. I should add that to arrive at the highest possible degree of accuracy, the specific gravity of the specimens examined should be brought to a fixed point, as is the case with the Esbach albuminometer.

This method does not pretend to attain strict scientific accuracy, but I have shown that with care a close approximation to the truth, and a reasonably correct picture of the output of albumin, however small, can be obtained. The advantage over the Esbach method, apart from the abolition of the 24 hours' standing, lies of course in the fact that the standard haze method is applicable to the small, as well as to the large degrees of albuminuria.

A CASE OF
CORTICAL NECROSIS OF THE KIDNEY
WITH POLYARTERITIS ACUTA NODOSA.

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THE following case is brought to notice on account of the extreme rarity of the association of these two conditions. The term polyarteritis acuta nodosa was introduced by Ferrari (1903) to describe a group of cases having all the symptoms of an acute febrile illness, the lesions found post mortem being multiple nodular swellings in the smaller arteries. A summary of the cases described up to 1907 is given by Carnegie Dickson, who differentiated between periarteritis nodosa, which is almost always of a syphilitic origin, and polyarteritis acuta nodosa, of which he collected 16 samples from the literature in which syphilis was apparently not the causal agent. He also describes in detail a case which came under his own observation, giving drawings of the vessels and the microscopical appearances. In his own case and in several of those quoted, one of the principal symptoms at the onset of the disease was acute abdominal pain. In his own case there was present definite evidence of a past tuberculous infection in the shape of caseous mesenteric glands.

An additional case is described by Beattie (1912) in which again the picture was that of an acute febrile disease in which post mortem the lesions present were multiple nodular swellings of the smaller arteries. Microscopical examinations in all these cases showed the middle coat of the arteries to be most affected. In these cases described by both Carnegie Dickson and Beattie, the kidney showed thrombotic areas and acute nephritis but not cortical necrosis. With regard to the condition of cortical necrosis of the kidney, this is also of considerable rarity. It has been met with chiefly as the complication of the later stages of pregnancy associated with symptoms of eclampsia, but is extremely rare in males. A case has been recently described by Bamfurth (1923). The patient, a soldier in the Salonica Force during the late war, was at the time suffering from malaria, though there was no evidence that this was in any way a contributory cause of the kidney lesion.

The following are the particulars of the present case:—

A boy, aged 13, was admitted on Nov. 25th, 1922, to the South Devon and East Cornwall Hospital, under the care of Mr. G. Robinson, senior surgeon, to whom I am indebted for permission to publish this case.

History.—A week previous to admission he had had very severe spasmodic pains in the right side of the abdomen with fever. This had persisted until on the day of admission he began to pass bright-red urine. Before admission he had noticed no blood in the urine and had passed a normal amount. No œdema had been noticed.

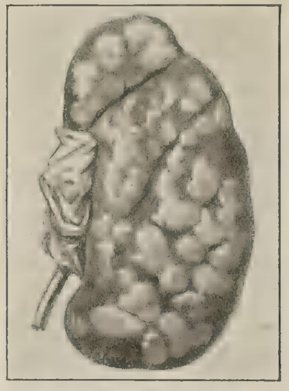
Condition on Admission.—He was rather pale, but otherwise of healthy appearance. No puffiness about the face; great tenderness below both costal margins, but no abdominal rigidity, and no tumour to be felt in the abdomen.

Course of Case.—On the day of admission he had nine fits within the hour, but soon after was perfectly conscious and showed no signs of drowsiness. On that day he only passed 1 oz. of urine. Temperature, 100·8° F.; pulse, 100. Shortly after admission abdominal pain was only slight and he began to pass more urine; four days after admission he was passing 2 pints a day. This amount steadily increased, until on the day before his death he passed over 4 pints. Blood pressure, 106 mm. Hg. Examination of the eyes showed no abnormality of the fundus. Examination of urine on Nov. 28th, 1922, showed a cloud of protein, a few red cells, leucocytes, and a few hyalo-granular casts. On the 29th estimation of the blood-urea gave 22 mg. of urea per 100 c.cm. blood, the diet at this time being almost entirely milk. On Dec. 7th the urine showed no evidence of blood to the naked eye. In the centrifugalised deposit there were a few red cells and leucocytes; no casts were seen; calcium oxalate crystals were numerous. Further examination of the urine on the 28th showed a cloud of protein, red cells, and leucocytes as before and fairly numerous granular casts. Cultures of the urine were sterile. A blood count on the 28th showed 16,200 leucocytes per c.mm., with a differential count as follows: Polymorphs, 82 per cent.; lymphocytes, 14 per cent.; large hyalines, 2 per cent.; eosinophils, 2 per cent.

Throughout, until the patient's death on Jan. 13th, 1923, as has been stated, he continued to pass between 2 and 3 pints of urine a day. No œdema was ever present. Latterly, the abdominal pain disappeared. He complained of no headache but ate badly, and slowly wasted. Towards the end the abdomen appeared rather distended and the superficial veins were prominent. At this period there was a diffuse systolic murmur heard over the base of the heart. There was no diarrhœa or constipation, the bowels acting regularly once a day. There was no vomiting. During the six weeks he was in hospital there was irregular fever with a maximum rise to about 101° F. There were no rigors. On two occasions there were slight transitory fits of about a minute's duration, until on Jan. 12th, the day before death, there were a series of prolonged and violent fits. The cerebro spinal fluid was then withdrawn by lumbar puncture. It was under considerable pressure. Microscopical examination of the fluid, which was quite clear, showed no excess of cells. The Wassermann reaction was not tested. The patient was one of a large family, his father and mother being both alive. Two brothers have been admitted to this hospital previously suffering from rheumatic endocarditis. The W.R. on the father's and mother's blood was performed. It was negative in both instances.

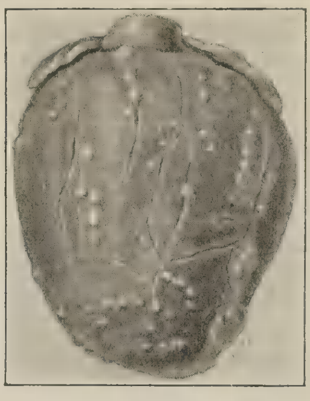
Post-mortem Examination.—Some clear fluid was found in all the serous cavities. The lungs were congested but otherwise normal. The heart was not enlarged; the valves were normal. Just about the tricuspid valves there was a small red swelling about the size of a pea. There was a similar swelling in the wall of the left ventricle. The coronary vessels showed numerous raised and thickened dilatations along all the smaller branches. The main trunks appeared rather thicker than normal, but were not dilated in the manner that the smaller branches were. The aorta was perfectly healthy. The stomach and intestines showed no abnormality, and the mesenteric vessels appeared normal to the naked eye. The liver and spleen, with their vessels, were normal. The kidneys were of normal size. The outer surface of both kidneys was studded with raised irregular whitish patches which resembled, at first sight, growth. On section, both kidneys showed a similar appearance. The cortical region was studded with these patches, many of them irregular in shape, but two were triangular, as is seen in infarcts. The ratio between cortex and medulla appeared normal. The portions of the cortex between these white patches were very deeply congested. The medulla appeared normal. The brain was normal. There was no hæmorrhage to be found and all the cerebral vessels were normal to the naked eye, showing no trace of the nodular appearance seen in the coronary vessels. Drawings of a kidney (Fig. 1) and of the heart (Fig. 2) show these appearances.

Fig. 1.



Showing necrotic patches in kidney.

Fig. 2.



Showing nodular swellings on smaller branches of coronary vessels.

Microscopical Examination.—A detailed description of the microscopical findings, with numerous plates, is given in the publications already referred to. Unfortunately, in this instance only the heart and kidneys were preserved for microscopical examination. Pieces of tissue were fixed in Kaiserling's fluid and embedded in paraffin. Sections were stained with hæmatoxylin and eosin, by Van Gieson's stain, and with methyl violet for amyloid changes. Sections were also stained with Giemsa and Leishman's stain, by the Gram-Weigert method, and by Levaditi's method for spirochætes.

Kidney.—In the necrotic whitish areas there was almost complete loss of structure of the kidney substance. These areas consisted of a mass of granular amorphous material with a faint indication of tubular structure. The epithelial nuclei were almost invisible. Scattered throughout these areas were numerous polymorphs and plasma cells and also numerous small masses of pigment. The zone just outside these necrotic areas showed a very considerable degree of increase in interstitial tissue with fibrosis. There was here considerable hæmorrhage, chiefly between the tubules. Nearly all the glomeruli in these non-necrotic areas were almost obliterated and replaced by fibrous tissue. Here were numerous areas of round-celled infiltration, and as in the necrotic portion there was extensive infiltration with polymorphs and plasma cells. The tubular epithelium was vacuolated and the nuclei stained rather poorly, but in this area the most obvious change was the glomerular one. In those areas, which appeared almost normal to the naked eye, the change, on the other hand, was relatively speaking nearly all tubular. Here the glomeruli were comparatively normal. There was thickening of the capsule and some hæmorrhage into the tufts. Throughout this area there was an intense degree of hæmorrhage, in a few places massive but chiefly between columns of tubules. The tubules in this area were largely denuded of epithelium and a large number were full of casts of hyaline material.

Vessels of the Kidney.—The vessels in general showed little change; there was a certain amount of thickening, chiefly of the media. A number of the smaller arteries were plugged with degenerated masses of red cells. In the necrotic areas a few vessels were seen in which there was an extreme degree of degeneration and inflammation of the coats and the lumen of these vessels was filled with organised thrombus. Sections of the renal arteries showed nothing more than a slight thickening and fibrosis of the middle coat; the other coats were normal.

Heart.—Section of the two small nodules in the wall of the heart already referred to showed them to be organised thrombi. Sections through the nodular enlargement of the small branches of the coronary arteries showed an extreme degree of proliferation and what appeared to be hyaline degeneration of all coats. In places they were not patent but obliterated by a mass of degenerated cells and organised clot. Section stained with Van Gieson's stain showed excessive fibrosis throughout the vessel. In many of the obliterated vessels no distinction could be made between the various coats. Round these obliterated vessels was a mass of small capillaries filled with blood and apparently carrying on a collateral circulation. There was also a considerable degree of perivascular inflammation round the affected vessels. Sections appropriately stained showed no evidence of amyloid degeneration. There was a fibrous myositis of the heart muscle. In none of the sections examined, stained by the various methods employed, were any micro-organisms seen.

Remarks.

The interesting features of this case are the most unusual combination of polyarteritis acuta nodosa with cortical necrosis of the kidney. The pathological findings have been described by others in full detail and the separate features in this case agree with those already described. That the disease is an acute infection seems obvious from its history and pathology, though so far no cause has been found. It would seem that in this case syphilis can be excluded. The history agrees in many respects with those quoted by Carnegie Dickson. It is curious that the boy should have had almost complete suppression of urine at first, after which a gradually increasing diuresis set in. Another curious feature of the case is that the arterial change was limited to the vessels of the heart, at any rate, as far as naked-eye inspection went. Also it is curious, considering the duration of the disease and the very extensive degeneration of the kidney, that no œdema was present throughout, and it is to be regretted that a chemical study of the kidney function was not performed at frequent intervals during the illness. The sudden onset with very acute pain and hæmaturia, and the absence of œdema, had at the beginning of the illness suggested stone as a possible diagnosis. Later the extreme wasting, the low urea content of the blood, and again the absence of œdema had suggested a neoplasm of the kidney. It is interesting to note that the acute symptoms described by Bamfurth in his case of cortical necrosis in an adult man—viz., the abdominal pain and fever—are in many respects similar to those described in cases of pure polyarteritis acuta nodosa, with the exception of the complete suppression of urine and sudden termination of the illness. The case here brought to notice in many ways is the combination of the symptoms found in the two diseases, and it is interesting to speculate if the pathology of the two is identical and the arterial changes the result of a more chronic type of infection. The case here described possibly offers some evidence for this view.

In conclusion, I should like to offer my thanks to Prof. L. S. Dudgeon for much advice and help in the preparation of this article.

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Ferrari: Ziegler's Beitr., 1903, xxxiv., 1.

Donations and Bequests.—The Chelsea Hospital for Women has received from the executors of the residuary estate of the late Mr. Charles Albert Bannister a grant of £100.

TWO CASES OF BRAIN ABSCESS,

WITH REMARKS ON THE CYTOLOGY OF THE CEREBRO-SPINAL FLUID.

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THE clinical diagnosis of abscess of the brain frequently presents great difficulty, especially in its earlier stages, and an examination of the cerebro-spinal fluid often affords the clinician no positive evidence, for when the fluid is clear, it may show no obvious abnormality, whilst in the final stage, when the abscess has discharged, or is leaking into the sub-arachnoid space, the fluid so closely resembles that of septic meningitis as to be almost indistinguishable from it.

The following two cases of cerebral abscess in children are reported with a two-fold object: first, as illustrating the value of a careful differential count of the cells of the fluid during the stage when this is still clear, and secondly, to put on record their rather unusual morbid anatomy.

CASE 1.—Female, aged 8, who had suffered from chronic suppurative otitis media for two years, was in fair health until seven weeks before her death. She then developed a progressive illness, with a fairly sudden onset, symptoms developing in the following order:—

Condition on Admission.—She was mentally confused, had continual headaches, general tenderness, photophobia, and rigidity of the posterior cervical muscles. No sign was found which suggested localisation of the lesion to any particular region of the brain. Both tympanic membranes were found perforated and 1·5 D. of swelling was found in each optic disc.

Course of Case.—During the first fortnight she developed attacks lasting several hours, during which she became semi-conscious with a meningeal cry, and had frequent vomiting, severe enough to produce ketosis. During the second fortnight the bouts of semi-consciousness became longer, and she was more difficult to rouse. Kernig's sign appeared. The patient developed an acute coliform cystitis, which rapidly progressed. During the third fortnight signs of pyelo-nephritis developed, and she was found to have slight œdema of the face. During most of the day she was semi-conscious, and for hours at a time she could not be roused. During the last week she had several convulsions with rigidity of the left arm and twitching of the face and limbs. The renal complication progressed rapidly, giving rise to high fever and considerable emaciation.

Cerebro-Spinal Fluid.—Two days after admission a lumbar puncture withdrew clear fluid under moderately increased pressure, having the following characters: clear, even when illuminated from the side by strong light against a black background; colourless, against a white background; contains 12 cells per c.mm., 70 per cent. of which are polynuclears. Total albumin and sugar content within normal limits.

A tentative diagnosis of cerebral abscess (approaching the ventricular system or the sub-arachnoid space) was made from the above finding in conjunction with the clinical signs. Fourteen days after this examination the fluid was again examined with the following result: Fluid still clear and colourless; cells, 40 per c.mm., 80 per cent. of which are polynuclear; total protein, 0·06 per cent. (normal upper limit 0·03 per cent.); dextrose, within normal limits. A week later the fluid was slightly opalescent by strong indirect illumination, but not coloured. It contained 50 cells per c.mm., 60 per cent. of which were polynuclear, whilst a fortnight before death the fluid was obviously opalescent and contained 580 cells per c.mm., of which 0 per cent. were polynuclear, its sugar contents remaining within normal limits.

Post-Mortem Examination.—A small abscess (about the size of a pea, containing thick yellow pus) was found in the substance of the optic thalamus. Its boundaries were well defined, but there was no well-formed capsule. At its inner edge a reddish streak led from the abscess towards the lateral ventricle. On section this streak proved to be thalamic tissue, heavily infiltrated by leucocytes, the majority of which were polynuclear. At the edge of the abscess and localised to its edge were many granule cells loaded with lipoid. At the periphery of the abscess the cells stained well; at its centre cell-staining was absent. A few masses of Gram-positive cocci were found in the film of the pus. No organism was found on culture. Tubercle bacilli were not found. A small cholesteatomatous mass was found lying on the postero-superior surface of the petrous temporal bone just internal to its junction with the squamous temporal. Both middle ears contained thin pus. No sign of temporo-sphenoidal meningitis or thrombophlebitis was found. The mastoid cells were normal. The immediate cause of death was acute hæmorrhagic cystitis and consecutive pyelo-nephritis.

CASE 2.—Male, aged 12, had pneumonia and an empyema at the age of 7, from which he apparently made a complete recovery. He was considered to be in normal health until two and a half weeks before his death. About this time he had headache and vomiting for four days, and wandered a little at night. He became drowsy and irritable. A week before his death he had four epileptiform convulsions during the course of 24 hours, and following this he developed ptosis of the right eye and very marked stiffness of the posterior cervical muscles. He gradually became semi-conscious and later comatose. He died after a series of convulsions. No sign of aural disease was found, but well-marked papillœdema was present in both eyes. Whilst in hospital his temperature varied between normal and 99° F.; the pulse between 56 to 88. No sign was found to localise his cerebral condition.

Cerebro-Spinal Fluid.—Eight days before his death, when the clinical diagnosis was in considerable doubt, lumbar puncture withdrew fluid under considerably increased pressure, having the following characters: Clear with strong illumination, and colourless against a white background; 12 cells per c.mm. Differential count: 75 per cent. polynuclear, 20 per cent. "gitterzellen," 5 per cent. small lymphocytes. Total protein, 0·045 per cent.; chloride and sugar contents within normal limits. A cerebral abscess was suggested as the cause of the symptoms, chiefly on the analogy with Case 1, and five days later another sample of fluid gave the following result: Colourless; a fine opalescence by strong indirect illumination; 48 cells per c.mm. Differential count: 40 per cent. polynuclear, 30 per cent. "gitterzellen," 30 per cent. lymphocytes. Total protein 0·06 per cent.; sugar and chloride within normal limits.

Post-Mortem Examination.—The right pleural sac was obliterated. The right lung showed collapse and fibrosis of long-standing. Leading into its lower part three dilated bronchial tubes were found, whose mucous membrane was thickened, reddened, and velvety. A large abscess was present in the right frontal lobe of the cerebrum, replacing most of the anterior and inferior parts of the lobe, and pushing back and compressing the head of the caudate nucleus. It had not ruptured, but there was a patch of localised meningitis at the frontal pole, and the ventricular wall was obviously softened and infiltrated anteriorly.

Remarks.

In both these cases a cerebral abscess was found post mortem which had not discharged its contents into the ventricular system or sub-arachnoid space. The cerebro-spinal fluid was first examined, in each case at a time when it was absolutely clear, and when the clinical diagnosis was doubtful. At this time, in each case, the cell count was found to be 12 per c.mm. Even when one bears in mind the constancy of the cell count in normal spinal fluid, and the accepted fact that any figure over 5 per c.mm. constitutes a pathological increase, it is difficult to persuade oneself, when searching for a diagnosis at the bedside, that an increase of 7 cells per c.mm. has any great weight. The cell count of these fluids was less striking, however, than the fact that the cells responsible for the increase were polymorphonuclear leucocytes and foreign to normal spinal fluid, whilst the steady increase in the numbers of these cells during the progress of each case justified the importance attached to their presence when their numbers were so few.

In both cases it happened that a diagnosis of cerebral abscess was suggested without any knowledge of the clinical facts of the cases, but no claim is made that the presence, in a non-meningitic and blood-free spinal fluid, of polynuclear leucocytes, is alone diagnostic of abscess. All experience is against basing a clinical diagnosis on the result of an examination of this fluid alone, but it seems probable that, if a careful differential count of the cells shows the presence of polynuclear leucocytes even in small numbers, we have evidence of considerable positive value. It is generally taught that if, in a case with symptoms of acute cerebral irritation and pressure, a moderate degree of pyrexia, and a leucocytosis in the blood there are no changes in the spinal fluid, the strong presumption is that the condition is one of intracranial abscess.

It is likely that a careful differential count of the cells of the spinal fluid in many such cases would show a slight polynuclear pleocytosis and afford evidence of a positive nature which must always be of greater value than the negative characters of the fluid on which it is usual to base the diagnosis of abscess in its early stages.

A cerebral tumour, producing a vascular reaction in the meninges of the surface of the brain, may give rise to slight pleocytosis in a blood-free, non-meningitic fluid, and the cell increase may be due to a predominance of polynuclear leucocytes. In some cases the combined clinical and pathological evidence will not be sufficiently strong to differentiate abscess from tumour. In two cases of frontal tumour, recently observed, in which a vascular reaction was present in the soft membranes overlying the tumour, slight pleocytosis was found in the fluid and a high percentage of polynuclear cells, but in each case the fluid, when viewed in a strong light against an opaque white background, was unmistakably tinged yellow.

A spinal fluid which is clear and contains glucose and chloride in normal amounts is usually accepted as being non-meningitic, and it seems likely that, in cases more favourable to surgical interference than those quoted, the discovery of even a slight polynuclear pleocytosis in a colourless, non-meningitic, and absolutely blood-free fluid, especially if confirmed by repeated examinations at short intervals, may be of considerable service in diagnosis and treatment.

I am indebted to Dr. J. Odery Symes and Dr. Newman Neild, physicians to the General Hospital, Bristol, for permission to use their clinical records of these cases.

Clinical and Laboratory Notes.

A CASE OF MINOR SURGERY OF THE HAND.

By J. W. Tomb, O.B.E., M.D., D.P.H, Dub.

With reference to the leading article on the Treatment of Infections of the Hands in The Lancet of August 18th, and to the observation at the discussion on the subject at the annual meeting of the British Medical Association at Portsmouth that in women, for æsthetic reasons, every effort should be made to avoid disfigurement, I desire to place on record a case of minor surgery of the hand which though traumatic and not infective in origin will, I hope, prove of interest in this connexion.

One evening while the writer, who at the time had just qualified, was on accident duty in hospital, a female child of about 5 years of age was brought by her mother into the out-patient department suffering from an injury to the right index finger. On examination it was found that the terminal phalanx had been completely severed through the joint with the exception of a narrow strand of skin and tissue on the inner side by which the phalanx was still hanging to the rest of the finger. To have snipped through the connecting skin and tissue with a pair of sterilised scissors would have been the work of an instant, all bleeding having ceased, but as it was the right hand which was involved and the child was a girl, it appeared to the writer that a desperate effort should be made to save the phalanx on the chance that though almost completely severed and at the time both cold and to all appearance dead it might be able to be kept alive artificially in warm saline solution until the blood-vessels in the connecting strand of tissue had had an opportunity to increase in size if possible sufficiently to provide for the permanent nourishment of the part.

The hanging phalanx was accordingly brought into line with the rest of the finger and retained roughly in position by three stitches one on each of the severed sides. The finger was then bandaged and the child's mother instructed that she must remain awake all night and while the child slept must keep the bandaged finger continuously immersed in a bowl of warm saline solution—to be made by adding a teaspoonful of salt to a pint of warm water. She was further instructed that she must on no account allow the temperature of the water to fall below blood heat, and that on her zeal depended whether or not the child's finger was to be saved She was also instructed to bring the child back to hospital f inspection the following morning so that the phalanx coul be removed if dead.

On the child being brought back next morning, though th part was still cold, blanched, and apparently lifeless, it wa not possible to state categorically that it was dead, and s after re-dressing the finger the mother was again instructe to carry on the same treatment continuously during th succeeding 24 hours and to bring the child back for r inspection the following day. On the child being brough for re-inspection it was at once evident by the change colour in the part that the circulation was succeeding i re-establishing itself, and that the blood-vessels in th original connecting strand of tissue were in all likelihoo going to prove sufficient for the future nourishment of th part. The finger was re-dressed and further anxiety regardin the immediate progress of the case laid aside.

The after-history was uneventful, the phalan "growing on" again without suppuration, leaving finger of normal appearance but with a stiff distal joint

Asansol, Bengal.

A CASE OF
UNUSUAL HÆMORRHAGE FOLLOWING A RADICAL MASTOID OPERATION.

By H. Lawson Whale, M.D. Camb., F.R.C.S. Eng.

OTO-LARYNGOLOGIST, HAMPSTEAD GENERAL AND LONDON TEMPERANCE HOSPITALS.

The following case is recorded because dangerou bleeding after a radical mastoid operation must b happily rare in the experience of any aurist.

At the Hampstead General Hospital on July 5th, 1923, performed what appeared to be a very ordinary radica mastoid operation on a male aged 23. There was no histor of hæmophilia, and during the removal of the patient' appendix six months earlier there had been no notabl bleeding; moreover, his coagulation-time had then bee found normal. During the mastoid operation there was n excessive hæmorrhage. The most frequent site of activ bleeding is a point deep to the lowest part of the concha— the spurt coming from a large branch, or more rarely the mai trunk, of the posterior auricular artery—when the meata flap is cut. But in the present instance even this stage of th operation gave no trouble.

On the evening following operation, and again on July 6th 7th, 10th, and 11th, the cavity repeatedly filled with blood soaking the dressings. On the 6th the post-aural stitches were removed, and on this and each subsequent day when bleeding occurred the cavity was re-packed, this proceeding involving a considerable loss of blood. On July 7th, under a light general anæsthetic, deep under-running sutures were inserted at the lowest part of the wound, to control the bleeding area. Between the 5th and 11th injections of hæmoplastin, subcutaneous and rectal salines, and calcium lactate by mouth, were consistently given with no avail.

On July 12th, one week after the operation, his general condition was extremely grave. A general anæsthetic was given; on removal of the packing there was a free intractable ooze of blood. The edges of the wound by now resembled sodden blotting-paper, and obviously no ligatures nor under-running sutures would hold. I therefore tied the external carotid (which arose from a high bifurcation close to the parotid gland) through a clean incision.

The subsequent history was one of slow but uneventful recovery.

Wimpole-street, W.

THE "ETERNAL (PLASTIC) TRIANGLE."

A SIMPLE CURE.

By H. D. Gillies, C.B.E., F.R.C.S. Eng.,

SENIOR SURG., QUEEN'S HOSPITAL FOR FACIAL INJURIES, SIDCUP.

The problem of suitably closing small triangular gaps, or of fitting triangular points of skin into V-shaped spaces, must be of very common occurrence to all surgeons engaged in plastic or reparative work. However carefully suturing by the ordinary methods is carried out, some small residual triangle usually results and the more numerous the sutures used in the attempt to obliterate this the more is trouble from local necrosis likely to ensue. Reference to the

THE "ETERNAL (PLASTIC) TRIANGLE."

FIG. 1.

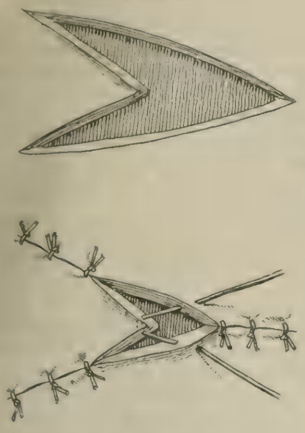


FIG. 2.

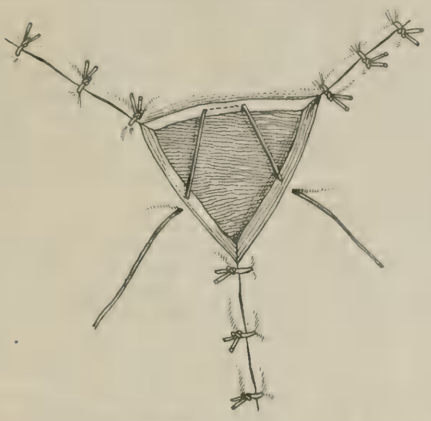
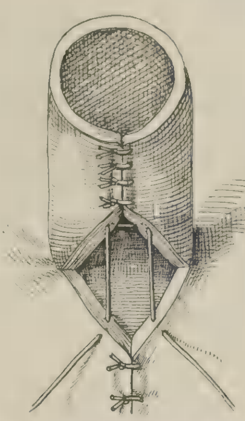


FIG. 3.



accompanying diagrams will make clear a method which has given absolute satisfaction in such cases.

Fig. 1 illustrates the way in which the point of a triangular flap is picked up subcutaneously by a skin suture passing between the other two sides, while Fig. 2 illustrates how one side of a triangle is similarly treated. Care must be taken to see that the points at which the needle penetrates the cut *edges* are all at the same depth from the skin surface. Fig. 3 illustrates the application of the same principle to the closure of the quadrilateral space at the extremity of a tube pedicle flap.

Portland-place, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PATHOLOGY.

A MEETING of this section was held on Oct. 16th, when Dr. JAMES YOUNG read a paper, illustrated by micro-photographs, on

Further Observations on the Ætiology of Malignant Disease and the Leukæmic Phenomena.

He stated that in cancerous tissue there were rounded or oval yeast-like bodies which could be seen to germinate when the tissue was incubated. Whilst adapted to the living tissue they were ill-adapted to the test-tube and became rapidly changed into elements suited to the new environment. In this way a cocco-bacillary flora was obtained which was easily stabilised on the laboratory medium. During its germination the yeast-like body became pale and in the "plasm" minute granules appeared which subsequently enlarged into the familiar flora. Thin threads and filaments frequently appeared as an intermediate phase. Dr. Young had long believed that the organism locked up in the cancerous tissue had the characters of a fungus. He described a fungus which he had obtained from seven cancerous tumours. This was stable on a dry medium, possessing branching hyphæ and conidia, but in a fluid medium was extremely unstable and rapidly broke down into cocco-bacillary elements. During the process yeast-ike, "plasm," and filamentous phases were common, and in every detail the morphological picture found n the incubating cancerous tissue was reproduced. njection of the bacillary phase of the organism obtained from mouse cancer produced in mice a diffuse and progressive neoplastic lesion (pseudo-eukæmia or lympho-sarcoma) in which the organism appeared not in the form of the bacilli injected but as yeast-like elements. By incubating the affected issues these rapidly became transformed into cocco-bacillary elements and the morphological process was again similar to that in incubating cancerous tissue. Dr. Young submitted that the investigations of Hort, Löhnis and Smith, Mellon, Almquist, Reid and Orr, de Negri, and others had proved beyond doubt the varying morphology possessed by familiar laboratory bacteria, which were to be looked upon as stabilised phases of organisms which in other conditions of growth possessed "plasm" and blastomycete characters. Dr. Young said that the organism used for his experimental injection was a lactose fermenter, belonging to the *Bacillus coli* group. From the chronic lympho-sarcomatous lesions, on the other hand, in the majority of cases a non-lactose fermenter belonging to the Salmonella group was obtained. The original organism produced a slowly progressive neoplastic lesion, the latter produced an acute, rapidly fatal lesion, although in its gross anatomy this might resemble the other. The sequence of the experiment implied clearly that the non-lactose fermenter was a secondary invader or that it was a mutant. If the latter were true it meant that cancer and the leukæmic phenomena were linked up with the typhoidal infections. In this connexion it was striking to note that the typhoidal lesion was essentially proliferative and might possess true malignant properties (Mallory) and that the possibility of the leukæmic phenomena being related to the typhoidal infections had already been mooted (Ewing). Dr. Young gave reasons for his belief that in the healthy animal the only cells that could after infection proliferate in a tumour-like fashion were the primitive cells. This finding had a striking analogy in the parasitic tumours of plants. It explained the leukæmic phenomena and at the same time the difficulty of producing cancer by artificial infection. It had long been recognised that a lengthy preparation of the mature cell was necessary for cancer to occur, and Dr. Young described experiments supporting his view that chronic irritation (tar, soot, heat, X rays, &c.) operated by throwing the mature cell back to the primitive state when alone infection would produce cancer. In each of four experiments comprising in all 152 mice, the animals were divided into two batches. One lot was vaccinated with the organism of the research, the other was kept as controls. All the animals were painted with tar twice weekly. The results were: After seven months in 76 controls there were 25 tumours, whereas in 76 vaccinated animals there were only five. These experiments supported the view that tar cancer was due to infection of damaged cells by an organism which was a common denizen of the laboratory cage.

Dr. E. H. KETTLE gave a communication on

Experiments with Defatted Tubercle Antigen.

He said that on analysing Prof. Dreyer's original paper it seemed that the claim that the new antigen was efficacious in the treatment of tuberculosis rested mainly upon the treatment of four guinea-pigs which had been infected with a strain of tubercle bacilli of low virulence. The evidence that the course of the disease was favourably influenced by the treatment was: (1) the increase in weight of the animals; (2) the diminution in size or disappearance of palpable lesions; and (3) the fibrosis and scarring of lesions in such animals as died. Dr. Kettle's experiments showed that these changes could occur naturally in guinea-pigs infected with tuberculosis without any treatment at all; further, that the most intense sclerosis and scarring of tuberculous lesions in one part of the body might be associated with the rapid progress of the disease elsewhere. Dr. Kettle's attempts at treatment of guinea-pigs had been carried out with an antigen (No. 58) given him in June by Captain S. R. Douglas, F.R.S., who had himself received it from Prof. Dreyer. Recently Captain Douglas had reached the conclusion that this particular batch of antigen was unsatisfactory, and that no great reliance could be placed on the results obtained therewith. Dr. Kettle said that the results of his own experiments were in any case ambiguous; some of the animals showed healing of lesions, but this was associated with active progress of the disease elsewhere. The general conclusions arrived at by him were that in view of the nature of the lesions to be seen in his control animals, which were demonstrated, the efficacy of the antigen in the treatment of tuberculosis in guinea-pigs had not been established; and that in view of the natural healing which tends to occur in these animals, comparable to the changes familiar in human pathology, much sharper reactions must be obtained before the value of any antigen could be considered as demonstrated experimentally.

Dr. J. **FREEMAN** made a communication on

Pollen Antigen Prepared by Dreyer's Method.

He said that it seemed interesting to try whether Dreyer's technique for the defatting of bacterial vaccines preparatory to constructing an antigen from them would prove a useful method for the defatting of grass pollen before extracting an antigen from it. The interest lay in the fact that the strength of the grass pollen antigen could be very accurately determined by suitable experiments on the skin of sensitive—i.e., hay-fever—subjects. For years the process of defatting the pollen before extraction had been carried out regularly, and it had only essentially differed from the full Dreyer technique in that there had been no initial fixing with formalin. This was, of course, the one point in which Dreyer's technique had differed from the previous work of Captain Stewart Douglas. Five grammes of pollen were extracted by Dreyer's method, and two other specimens of 5 g. were extracted as controls, one of them in exactly the same way as the Dreyer method minus the formalin, the other in the more usual manner of the laboratory. The preparations were tested on a number of patients and on a number of different occasions. The extract made according to Dreyer proved itself to be from 200 to 1000 times weaker than the other extracts. This would suggest that either the antigen was extracted in the formalin, or else that the formalin combined with and spoilt the antigen. If anything comparable happens in connexion with the tubercle bacilli it showed that the Dreyer defatted vaccine was very much weaker than the bacillary emulsion, which to Dr. Freeman's way of thinking might very well be consistent with its being more effective.

SECTION OF DERMATOLOGY.

A SPECIAL meeting of this section, to which members of the Neurological Section were invited, was held on Oct. 18th, Dr. E. G. **GRAHAM LITTLE**, the President, being in the chair, to hear an address by Prof. J. A. **FORDYCE**, Columbia University, New York, on

Results of Treatment of Syphilis of the Nervous System.

Prof. Fordyce said that observations as to the final results of incompletely cured cases of early neur syphilis had led his colleagues and himself to car out a rather extensive and prolonged study as to t probable relationship of the early types to the la degenerations. As a result, they were led to belie that the incidence of incurable types might be reduc to a minimum by proper diagnosis, treatment, an control of early cases. Only within the last te years had it been shown how frequently the spir chætes enter the nervous system during the peric of their dissemination by blood and lymph; it wa found that fully 25 per cent. of all syphilitics pr sented clinical or laboratory evidence of involvemen of the nervous system in the first year of infectio Many clinical observations were on record in whic patients with late syphilis of the nervous syste reported the occurrence of ocular palsies, bladd and rectal disturbances, paræsthesias, changes i the deep reflexes, and other signs of early implic tion. These symptoms regressed under treatmen but usually recurred in a more pronounced mann until a well-defined type was established. He ha been able to follow the life-history of several patient from the early months of their infection with positi evidence of cord and brain syphilis, until the develo ment, some 20 years later, of typical tabes an paresis. In cases in which modern therapeut methods had been employed and controlled by spin fluid examinations, cures without relapses had bee achieved. His colleagues and himself had been abl in their private and public work, to control, b clinical observation and laboratory tests, so-calle cures in many patients treated in a routine mann during the early infection, and he was convinced tha the large majority whose nervous systems wer implicated at that time, retained the infection though symptoms might temporarily disappear an the blood Wassermann become negative. Failure t control the infection in the central nervous system by systematic spinal fluid tests, led to the persistenc there of residuals which later became activated Longer use of the arsphenamine preparations intra venously, if their effects were controlled by flui examinations from time to time, cured certain type of early and late neuro-syphilis. On the other hand they had had cases in all stages of the infectio which failed to respond to drugs by the ordinar channels, but rapidly yielded to combined intra venous and intraspinal injections or to intraspina treatment alone.

Obviously, any prophylactic measure which migh prevent or lessen the incidence of neuro-syphilis should receive serious consideration; if lumba puncture were limited to cases with obtrusive signs irreparable damage might result. In over 1000 case of syphilis in which lumbar punctures were made i his clinic, 38 per cent. showed positive findings i the first two years. In one group there was a relatively low cell count, a slight excess of globulin a positive Wassermann reaction in the low dilutions and a luetic gold sol. curve. The minor cases wer amenable to routine treatment; they did not progress, and there were only slight nerve signs. In other groups of cases the most frequent symptoms were headache, vertigo, insomnia, nervousness, pains in the extremities, phobias, and inability to concentrate. Optic and auditory nerves were occasionally found to be involved, also pupillary irregularities, and deep reflex alterations. Several malignant cases were encountered, giving the picture of an acute meningitis, and some of these ended fatally. Experience had shown that in these malignant cases it was best to begin treatment with small doses, and relieve the pressure by spinal drainage, before proceeding to energetic measures. He and his colleagues believed that the nervous system might continue to harbour spirochætes, and yet all tests might be returned as negative. Still, these exceptional cases did not alter the general rule that the spinal fluid reflects the pathological processes in the brain and cord, and enables a differentiation to be made from non-syphilitic affections giving a similar clinical picture.

The nervous system might for years be the habitat of the spirochætes, and show little or no tissue reaction until a traumatism or other excitant stimulated their activity. A slight character defect, loss of ambition, forgetfulness, irascibility, mental depression, neurasthenia, often preceded for years the final stages of the paresis. The number of cases of syphilis of the nervous system was much greater than statistics revealed, as the figures were based on cases showing the classical syndrome.

A comprehensive re-study of the symptomatology in correlation with the findings in the laboratory they had found to be necessary before a rational prognosis could be made, and a logical treatment devised and carried out. The absence of the paretic gold sol. curve, in most of the cases, definitely excluded paresis. All who had wide experience in syphilis occasionally met with a patient presenting typical Argyll Robertson pupils, absent knee-jerks, with ninor sensory disturbance, and but little disturbance n gait, and in the cases of the kind examined the blood and all the findings in the spinal fluid were negative, and had remained so for several years. The possibility of the arrest of tabes by the ordinary outine treatment, or by the defensive forces of the body should encourage practitioners in their therapeutic efforts. In a clinical and serological analysis of 442 cases of neuro-syphilis in his private work during the past ten years, 156 patients with tabes were investigated, 50 of them in an early stage, with ncomplete findings of posterior column involvement, while 106 were sufficiently advanced to give the classical symptoms. In 70 per cent. the Wassermann eaction was positive in the blood, and—with one xception—positive in the fluid when larger quantities were used in the test. Twenty-five per cent. had a aretic gold sol. curve, and 75 per cent. a luetic one. The cell count varied from normal to 350. Of these ases, 30 had been re-examined, and had remained ee of symptoms on serological examination for om one year to nine years. Thirty-seven cases were not re-examined; in addition, 68 cases showed arked clinical improvement. The larger number f cases of neuro-syphilis were referred to Prof. ordyce by physicians who had treated them more r less intensively in a routine manner with salvarsan nd mercury, without antecedent fluid examination, it was not always possible to know the extent to hich the fluid findings were influenced by intraenous treatment alone. In the case of patients who ad become intolerant to salvarsan intravenously, ey had been obliged to employ intraspinal treatent with serum obtained from another treated tient. In this way proof of its spirochæticidal tion was obtained, uncomplicated with other ctors. Dr. Swift had given him the history of a pical case of tabes treated by Dr. Ellis and Dr. wift in 1913, by serum intraspinally, without intraenous injections. He was examined ten years after s last treatment, and his fluid findings were both egative, and his tabes had not progressed. The efinite response of certain types of neuro-syphilis intraspinal treatment after failure of the prolonged se of the intravenous route was confirmed by long inical experience and by careful laboratory control. ersistent intraspinal treatment when indicated by the uid findings could often preserve useful vision in optic rophy resulting from basilar meningitis. He gave tailed statistics of the ocular cases which had come der his care.

For the purposes of comparative study, he and his lleagues had grouped their 442 cases under the lowing tentative diagnoses, based on the clinical d the laboratory findings: (1) Secondary neurophilis; (2) vascular and meningo-vascular; (3) prebes or *tabes imperfecta*; (4) tabes well developed; optic atrophy and general paralysis. 365 of the 2 cases had been examined from one to ten years er treatment was discontinued. Nineteen cases secondary neuro-syphilis were treated intraspinally ause of the persistence of their symptoms and the t that there were fluid findings after from one to three courses of salvarsan given intravenously and mercury intramuscularly. Wassermann was positive in all cases, either in the blood or the fluid; in a large majority in both. The cell-count ranged from normal to 940. Five of the 19 cases received more than one course of combined intravenous and intraspinal treatment; eight had more than two courses; five had more than three courses. One patient, who was sensitised to salvarsan intravenously, was treated intraspinally only, and received 67 injections before securing a cure. In all the 19, the headache, insomnia, vertigo, aphasia, and facial palsy disappeared. Those which had marked tendon and pupillary changes had them still. In every case the reaction became negative in the blood, and in only two cases remained weakly positive in the fluid. The 17 patients who were serologically negative, had remained so for from 18 months to six years. Under vascular and neuro-vascular and neuro-syphilis he had included 139 cases which came under observation after two years from the primary infection, the signs being too indefinite to place them in the tabetic or paretic groups. In 25 the reaction was negative in the blood, and the diagnosis might have been missed if a complete examination had not been made. Sixteen had a negative reaction. Intraspinal treatment was used only when the fluid findings were positive. The speaker showed by a series of tables that the number of cases considered to be cured became progressively less with the age and the type of the infection. Of 116 cases of paresis treated intensively, 39 died, 30 had passed from observation, and 47 were known to be still living. He could not report any cures, though remissions were induced in 46 patients, the intervals lasting from a few months to several years.

Before he left New York treatment had been begun with the new arsenical preparation tryparsamid in a number of paretics; he could not yet pronounce as to its value. A preliminary drainage was not essential, and only the quantity of spinal fluid necessary for the tests had been removed in the cases under his care. Into the receptacle attached to the spinal puncture needle, 30 to 40 c.cm. of fluid was allowed to accumulate, and to this was added the inactivated serum. The mixture was then allowed slowly to re-enter the subarachnoid space by gravity. Thus, about one-third of the entire quantity of spinal fluid was mixed with salvarsanised serum before its reinjection. Half an hour after the preliminary intravenous injection was, they found, the best time for removing the blood. This was permitted to clot overnight in the ice-box; next morning it was centrifugalised and the serum pipetted into a sterile tube. This was repeated to remove all red cells, and the clear serum pipetted into another tube and heated for 30 minutes at 56° C. The intervals were never less than two weeks, and were gradually lengthened until six or eight injections had been given. Six weeks to two months were allowed before a second series was commenced. Numbness in buttocks and genital organs, with difficulty in urinating, must be taken as indications to discontinue the treatment, or at least observe longer intervals between injections.

Conclusion.

Prof. Fordyce summarised his conclusion as follows: Mostly, the central nervous system is invaded during the general dissemination of the virus. Often it was checked, seldom cured, by the usual therapeutic methods. Late neuro-syphilis is not due to reinfection from foci outside the nervous system, but to long persistence *in loco* of the infecting organism. If the nervous system was not involved early in the infection, probably it would not be involved later; this with the exception of vascular lesions and gummata. In the presence of a persistent Wassermann, the possibility of a nervous system lesion should be remembered. Treatment should not be stopped without information from lumbar puncture. Certain types of nerve syphilis were more rapidly controlled by combined intravenous and intraspinal treatment, and sometimes only by this method. In general paralysis remissions of long duration were achieved which were more striking in patients with a pronounced meningeal reaction. Cures could not be attained by any existing treatment.

Discussion.

The President expressed the warm thanks of the meeting to Prof. Fordyce for his valuable address.

Dr. James Collier said Prof. Fordyce saw cases at an earlier stage than seemed the general experience in this country, and the lecturer and his colleagues treated the cases from the moment they appeared, even before they showed neurological symptoms. He heartily agreed with the view that invasion of the nervous system occurred in very early days. It was remarkable how long the virus might remain latent. One case he knew acquired the disease at 18 years, and his first neurological symptom supervened at the age of 61. He would like to know how soon after primary infection tabes might develop; he had known cases in which virulent and progressive degeneration of the nervous system occurred within a number of months after the primary infection. Prof. Fordyce seemed to have attained amazingly favourable results. Optic atrophy from gumma on one side was often arrested, but he had never known a slow diminution of vision from neuronic degeneration cured.

Prof. F. R. Fraser agreed that the results obtained by Prof. Fordyce in New York were largely due to the very thorough treatment he had carried out. Many workers maintained that the results of lumbar puncture combined with intravenous injections were good without the intraspinous use of salvarsanised serum as well. Two series treated by the two methods would form an interesting comparison. The lesson of the address was a definitely valuable one, as he felt sure the general profession did not sufficiently appreciate the early involvement of the nervous system by syphilis.

Dr. Ellis considered the work detailed by Prof. Fordyce to be one of the biggest presentations on the subject he had ever heard. When a man said intravenous treatment did not benefit neuro-syphilis, it could generally be safely assumed that he had been giving an inadequate amount, and so with other treatments. And here the thorough treatment of these cases was a question of man-power; the amount of work for each man to look after in our hospitals was much greater than in New York. There was very strong probability that dissemination of the virus to the nerve and other structures took place during the period of septicæmia. In his own original series all the cases which resisted treatment and in whom the signs of infection persisted had since died.

Dr. G. Riddoch referred to rare cases in which, though the clinical and serological tests became negative, the patient continued to go downhill; these required serious investigation. He had great praise for Prof. Fordyce's work and the extraordinarily good results he had achieved.

Dr. J. H. Sequeira said the work done long ago by Head, Fearnsides, and others, showed that the spinal cord and brain were affected in very early stages of syphilis; and all the available knowledge showed how important it was to commence treatment for syphilis at the earliest possible moment. It devolved on all in charge of syphilis clinics especially to take the lesson to heart. By attention to the points insisted on by Prof. Fordyce, there was hope that the greater part of neuro-syphilis might be stamped out.

Dr. H. MacCormac remarked that it might be said the neurologist saw the failures of the dermatologist in this disease. In his own clinic all the cases of early syphilis were examined in regard to the cerebro-spinal fluid, and in most cases this fluid showed no evidence of the disease after a complete course of treatment; yet it did not follow that at a later period they would not show some of the remote sequelæ. This contribution should encourage dermatologists to persist in the treatment longer than they did at present.

Dr. Wilfred Fox combated the statement sometimes heard that neuro-syphilis was produced by instituting more active treatment.

Dr. A. M. H. Gray also thanked Prof. Fordyce for his contribution, and dealt with the proportion he gave of secondary cases in which there was evidence of neuro-syphilis, comparing that with the figure obtained in pre-salvarsan days.

Prof. Fordyce briefly replied.

MEDICAL SOCIETY OF LONDON.

Exhibition of Cases and Specimens.

A clinical evening of this Society was held at 11, Chandos-street on Oct. 22nd, with Dr. Herbert Spencer, the President, in the chair.

Pituitrin in Diabetes Insipidus.

Dr. Batty Shaw showed two cases of diabetes insipidus, illustrating the value of treatment by hypodermic injections of pituitrin. The first, a man, had been passing as much as 18 pints of urine a day for a considerable period before he sought advice. There were no signs of nervous lesion, an X ray of the skull showed no change in the pituitary fossa, and the metabolism was normal; 2 c.cm. of pituitrin a day administered hypodermically had reduced the urine output to almost normal dimensions, but its use had been followed by multiple subcutaneous abscesses, thrombosis, and infarction of the lung from which the patient was now happily recovering. The second case, a female, was interesting, as in this case the polyuria had followed a definite glycosuria which had now disappeared; 1 c.cm. of pituitrin daily was sufficient to control the symptoms in this case.

Dr. K. S. Hetzel, who continued the description of the cases, said that in both cases the blood-sugar was raised, but there was no glycosuria. The basal metabolism in the first case was lowered as was the rule when the disease was well established, and in the second case, which was of recent origin, was raised 18 per cent. The action of the pituitrin was apparently on the kidney.

Dr. F. J. Poynton had treated a child, aged 11, who was passing 280 oz. of urine a day and was really very ill, with pituitary extract with great benefit. Pituitary extract was useless unless given hypodermically.

A Case of Cerebral Tumour.

Dr. G. Riddoch showed a woman, aged 32, who had exhibited a left hemiparesis and hemianæsthesia, with headache and vomiting during each of her five pregnancies in the last eight years. In August this year, when she was admitted to the gynæcological wards of the London Hospital for the sequelæ of a miscarriage, these symptoms were again present. Examination revealed papillœdema and constriction of the visual field on both the nasal and temporal sides, especially marked on the latter. The urine was normal. An X ray examination showed a normal sella turcica, but there was a change in density of the picture in the region of the anterior clinoid process. Since then the hemiparesis and anæsthesia had disappeared almost totally, but the visual defect and headache remained and the patient was becoming obese, having put on a stone in weight since being discharged from hospital. He thought there could be little doubt that there was a cerebral tumour; the case exhibited well the exacerbations and remissions which might occur in the progress of this disease.

Carcinoma of the Pharynx.

Mr. E. D. D. Davis showed drawings of five cases of carcinoma of the pharynx: (1) an early epithelioma of the base of the tongue; (2) an advanced excavating ulcer of the base of the tongue; (3) an early pyriform sinus epithelioma; (4) an early post-cricoid carcinoma, the larynx in this case had been excised by Mr. E. B. Waggett; and (5) an advanced post-cricoid epithelioma from a woman aged 38. It was curious that the pyriform sinus epithelioma was almost confined to the male sex, while the post-cricoid epithelioma was seldom seen except in comparatively young women whose symptoms were too often attributed to hysteria before the secondary glandular enlargement in the neck revealed the true nature of the case. Laryngoscopic examination was often very difficult, but these growths could easily be reached and felt by the finger. Mr. Davis also showed a radiogram of a pharyngeal pouch filled with a bismuth mixture, and gave an account of the case and the operative treatment employed.

Mr. **ARTHUR EDMUNDS** had also found the finger the most reliable guide to the diagnosis of pharyngeal growths; this examination was best made under general anæsthesia.

In answer to a question by the **PRESIDENT**, Mr. **DAVIS** said that radium, while cleaning up malignant ulcers of the pharynx and rendering life more comfortable for a time, had no curative effect. At least 200 milligrams should be employed for this purpose.

Acholuric Jaundice.

Dr. **POYNTON** showed a young woman, a case of this congenital disease, who had been under observation for 20 years. In the case shown fragility of the red blood corpuscles had never been demonstrable, although it was well marked in two other members of the same family who suffered from the same disease. The spleen was much enlarged. He showed her with a view to obtaining opinions as to the advisability of splenectomy.

Dr. **HERBERT FRENCH** thought the spleen should have been removed ten years ago, before the patient had come to her present low condition and the spleen to its very large size which rendered operation very risky. He had had a case of the same kind in a boy who, before splenectomy, was too ill even to attend school. After the spleen had been removed he recovered so well as to be able to serve abroad throughout the war; he was now married and had two children.

Dr. **PARKES WEBER** knew of a family similarly afflicted. One of the male members served abroad for some time, but had a relapse. Splenectomy was eventually performed and he recovered. On the other hand, the grandfather, who suffered similarly, lived to 74 without any operation. As the result of his observations in South Germany, where Perthe had obtained admirable results from splenectomy, he would now feel inclined to advise operation in selected cases when the services of a surgeon experienced in this operation were available.

Dr. **POYNTON**, in reply, said that ten years ago the patient was not under treatment—in fact, she had only presented herself on four occasions during 20 years for relapses, apart from which the patient was able to carry on her work. An elder brother had been able to work with a red blood count of only 1,700,000, and a sister of 30, who also suffered even more severely, had improved after marriage and had a healthy child. Under these circumstances he was averse to advising operation merely on account of the pain due to the spleen.

Congenital Heart Disease.

Dr. **T. JENNER HOSKIN** showed a girl, aged 8, who suffered from breathlessness on slight exertion. Examination of the heart showed the apex beat in the fourth intercostal space just external to the nipple, with a thrill and humming-top murmur systolic and partly diastolic in time over the aortic area. X rays showed slight enlargement of the heart to the left, while the electrocardiogram suggested a right ventricular preponderance. The sounds resembled those of a patent ductus arteriosus, but were heard on the wrong side of the chest; this he thought might be due to transposition of the great vessels without transposition of the heart. Two other members of the family, the father and a paternal uncle, were said to have suffered from congenital heart disease.

Melanotic Sarcoma.

Mr. **SAMPSON HANDLEY** showed a case of melanotic sarcoma. The primary tumour on the cheek had been excised locally, and glandular deposits were treated medically for some time before the case came under his care. The case now exhibited a number of metastases spread around the site of the primary tumour, the distribution of which suggested that dissemination occurred through the lymphatics, as in cancer of the breast. In further proof of the lymphatic spread of melanotic sarcoma he hoped to show on a future occasion a case of recurrent melanotic sarcoma still living on which he had operated 15 years ago.

Diverticulum of the Bladder.

Mr. **CLIFFORD MORSON** showed X ray photographs and the stones removed by operation from two cases of diverticulum of the bladder containing stones. The first case was cystoscoped for pyuria, and the diverticulum containing stones was observed. Subsequent operation, however, revealed an inoperable carcinoma of the pouch. The second case, a man aged 75 years, had had a prostatectomy performed by Sir Peter Freyer 18 years ago. Five years later a stone was removed by litholapaxy. The skiagram on this occasion showed 15 stones which were removed by suprapubic cystotomy. The pouch in which the stones lay was very large and adherent to the colon, so that its removal was not deemed feasible. In answer to questions, Mr. Morson said that carcinoma in a diverticulum containing stones was, contrary to what might be expected, very rare. At a recent meeting of urological surgeons only two cases of the kind could be recorded.

A Case of Myotonia Atrophica.

Dr. **JAMES PURDON MARTIN** showed a woman, aged 35 years, who suffered from this form of muscular dystrophy. She exhibited the characteristic wasting in the facial muscles, the sternomastoids, the muscles of the forearms and of the right thenar eminence, the extensors of the thighs, and the right calf muscles. Myotonia was shown in the hand grasp and in the reaction of the muscles of the thenar eminence to percussion. Absence of all the tendon jerks with preservation of the normal superficial reflexes was also demonstrated. There was an interesting association of this disease with cataract, which usually appeared in two or more preceding generations, and in this particular patient was exhibited by the grandfather and father. These patients also exhibited a change in temperament becoming "negativistic." The children of the myotonic generation appeared to be normal. The explanation of the tonicity combined with wasting in the muscles was difficult, but the electrical reactions showed that the muscles and not their innervation were to blame.

Plastic Surgery.

Mr. **ARTHUR EDMUNDS** showed three cases illustrating the results of plastic surgery. The first showed the closure of a gap in the cheek by sliding flaps of mucosa on the buccal aspect; such flaps, if properly fashioned, would heal almost as readily as similar flaps on a normal skin surface. In the second case, a pedicled skin flap from the abdominal wall had been employed successfully to make good the loss of skin resulting from a severe crush of the hand. A case of hypospadias successfully treated by fashioning a new urethra by stages from the prepuce was also shown. The method employed was described and illustrated in THE LANCET (1913, i., 447).

UNIVERSITY OF MANCHESTER.—Amongst those persons selected by the Earl of Crawford and Balcarres to receive honorary degrees on the occasion of his installation as Chancellor of the Victoria University of Manchester are Prof. J. G. Adami, F.R.S., and Sir Arthur Keith, F.R.S. Prof. F. E. Weiss, D.Sc., F.R.S., has been reappointed Pro-Vice-Chancellor for a period of two years.

Reviews and Notices of Books.

THE HEART IN MODERN PRACTICE.

Diagnosis and Treatment. By **WILLIAM DUNCAN REID**, A.B., M.D., Chief of Heart Clinic at the Boston Dispensary; Junior Assistant Visiting Physician and Member of the Heart Service at the Boston City Hospital. London and Philadelphia: J. B. Lippincott Company. 1923. Pp. 352. 25*s*.

THE central motif of Dr. Reid's admirable little book is summed up by these words in the preface: "The day of the consideration of heart affections from the viewpoint of the structural change or anatomical lesion has passed; of greater importance is that of the functional condition and perhaps even more essential, to an intelligent conception, is the recognition of the ætiological type." In pursuance of this policy the author has divided the main part of his book into three sections. These deal respectively with the types of heart disease from an ætiological standpoint, functional conditions, and, lastly, structural lesions. In the present state of our knowledge a complete and perfect ætiological classification of disease is, of course, impossible. But even a provisional classification on these lines is infinitely preferable to the older system, which was not merely unsatisfactory, but tended to raise up an artificial boundary between structure and function.

During recent years so many new facts have been added to the physiological aspect of cardiology that a comprehensive text-book which attempts to give a complete account of the subject must attain considerable dimensions. Dr. Reid has not attempted to do this; and in cutting down the subject to suit the average student he has used the pruning-knife very freely. He has, however, succeeded in maintaining throughout a very good sense of proportion, and has given a thoroughly up to date, if brief, account of a difficult subject. The method of delegating the illustrative cases to an appendix makes the text the more readable, and both Dr. Reid and his publishers are to be congratulated on having produced such an attractive and useful book.

A DICTIONARY OF TREATMENT.

By Sir **WILLIAM WHITLA**, M.D., D.Sc., LL.D., M.P., Emeritus Professor of Materia Medica and Therapeutics in Queen's University, Belfast; Hon. Physician in Ordinary to H.M. the King in Ireland; Consulting Physician to Royal Victoria, Belfast Ophthalmic, and the Ulster Hospitals for Women and Children. London: Baillière, Tindall and Cox. 1923. Pp. 1100. 25*s*.

THAT seven editions of this work have appeared is testimony to its abundant popularity, but whether the condensation of the treatment of all medical, surgical, and gynæcological conditions into a single volume is any longer possible has become a debatable matter. It is inevitable that in such a work there must appear many statements which readers specially experienced in one branch of medicine must receive with reservation. That is not a serious matter while the principles are generally accepted unless omissions occur which obscure the principles. Some of the recommendations which appear in this edition will be challenged to-day—we may refer to the article on diabetes, in which, in spite of ample reference to the discovery of insulin, the clinical and laboratory tests given have been supplanted, and the diet much criticised, if not condemned. Under chronic dysentery there seems no mention of emetine as a possible specific treatment, and the mention of quinidine in the treatment of auricular fibrillation is dangerous in its brevity. It would be easy to multiply examples of the same nature; to do so would be to give a false impression of what is, in many respects, an accumulation of much wisdom included in a volume whose popularity is well deserved. Will not Prof. Whitl simplify and condense this work in a new edition The advice seems to contradict remarks directe against omissions, but the omissions could be rectifie if the space were found by rigorous deletion of th matter which is no longer accepted, or only hal proved.

KLINISCHE LABORATORIUMSTECHNIK.

I. Band. Herausgegeben von Prof. **THEODO BRUGSCH** und Prof. **A. SCHITTENHELM**. Berli and Vienna: Urban und Schwarzenberg. 192 Pp. 681.

THIS is the second edition of a handbook on clinic methods. The original first edition was issued und a different title: "Technik der Speciellen Klinische Untersuchungsmethoden." Three volumes are pr jected for this second edition, of which the volum under review is the first. It deals with the followin subjects: measurements of the body; estimation blood volume; total hæmoglobin and minute volum of the heart; the electrocardiograph; the registratio of arterial and venous pulse and of the heart sounds registration of respiratory movements; X ray tec nique, bacteriological technique, histological techniqu various optical apparatus (spectroscope, polarimete colorimeter, dark-ground illumination), and th technique of metabolism experiments.

The various chapters are competently writte but it is not easy to see the advantage of assemblin in a bulky volume such heterogeneous materia The bacteriologist is not likely to be interested in th technique of the electrocardiograph or the metho of registering the cardiac sounds. For most of th subjects dealt with in this volume numerous mo exhaustive monographs are already available, and would have been preferable if the material collect in this volume had also been issued separately in th form of monographs.

HIGH-FREQUENCY PRACTICE.

Second edition. By **BURTON BAKER GROVE** M.D., Fellow of the American Electrotherapeut Association, &c. London: Chapman and Hal Ltd. 1923. Pp. 399. 21*s*.

THIS book begins with an introductory chapt entitled "What is Electricity?" In this chapter a discussed the nature of electricity and light, th theories of atoms and electrons, &c. Next the natu and production of high-frequency currents a explained and various methods of applying the Chapters follow on medical diathermy and surgic diathermy and deal with the uses of high-frequen for the production of heat within the body. Blo pressure in health and disease and the influence high-frequency currents on it are next noticed a pain is defined; a classification of pains is given a the clinical significance of pain in various regio is discussed. In Chapter VII., the longest in the boo containing 140 pages, the treatment by high-frequen of over 80 diseases and morbid conditions is describe The treatment of diseases of the eye by the sa means is considered in the next section. The auth recommends the use of high-frequency and describ its application for cases of inflammation of the co junctiva and cornea, for corneal opacities, iriti glaucoma, cataract, optic atrophy, toxic amblyopi and certain diseases of the lids. The book conclud with two appendices and a glossary. The fir appendix contains a number of questions, which w enable the physician to examine himself as to the sta of his knowledge of high-frequency. The seco contains the author's presidential address to th Western Electro-Therapeutic Association.

After a perusal of this book the impression is gain that high-frequency currents have some physiologic and therapeutic action other than that due to th production of heat in the body. The author stat that the physiological action of these currents vari with the type of apparatus, but he does not s whether different types of apparatus differ in th amount of heat which their currents produce in the body. The physiological actions of high-frequency currents on them are described for the different organs. It is said that "splanchnic stasis is relieved through a general stabilisation of the circulation." The secretion of the pancreas is stated to be "influenced in some unknown manner which results in decreased output of sugar in the urine." Under the heading of the spleen we read: "The reflex of contraction and dilatation may be incited through spinal application, thus in a limited manner controlling certain infections. Direct application favours the freeing of specific bacteria which enter the circulation causing recurrence of malady." Diathermy is described in two separate chapters and the idea is conveyed that it is a special branch of high-frequency therapy.

Although he will not agree with many of the statements made on physics and physiology, the English specialist in electro-therapeutics will find much that will interest him in this book. It is humorously written in parts. In the treatment of headache the author says that above all things the route which leads to the acetanilid shelf should be avoided. "Americanitis," he says, is one of the ætiological factors in neurasthenia.

OBSTETRIC TABLES.

A Guide for Students. Second edition. By MAURICE G. ANDERSON, L.R.C.P. Edin. London: A. and C. Black. 1923. Pp. 111. 3*s.* 6*d.*

THESE tables are intended for the use of students as a help in revising their work. The arrangement is good and no doubt they fill a useful function. We cannot, however, regard them as typical of modern teaching on this subject. For example, under the treatment of placenta prævia no mention is made of the use of a hydrostatic dilator, often one of the most successful methods of treatment, and in discussing the treatment of accidental hæmorrhage nothing is said for the necessity of Cæsarean section in some of these cases, while of plugging the vagina Dr. Anderson says that it is often successful, but with the added risk of sepsis. The average length of time required for the induction of labour by Krause's method is 84 not 12 hours.

PUERPERAL FEVER AND ITS PROPHYLAXIS.

By EUSTACE THORP, O.B.E., L.R.C.S., L.R.C.P., D.P.H., Assistant Medical Officer of Health, Sunderland; Medical Officer, Sunderland Borough Sanatorium. Bristol: John Wright and Sons. 1922. Pp. 48. 2*s.* 6*d.*

THIS little brochure contains an account of a series of small epidemics of puerperal septicæmia occurring in an institution.

Early in the year a septic case was notified; this was followed by a case of scarlet fever and these by five other cases of scarlet fever complicated by fairly severe septicæmia; there were two deaths. Disinfection having been thoroughly carried out cases ran normally until an emergency septic case was admitted and from this case 11 other women showed signs of infection; five were seriously ill, two fairly ill, and three sapræmic. There were no deaths. From his experience in these and other cases the author has written an eminently readable account of the chief features of this disease.

THE VILLEMIN HOSPITAL.

Un hôpital militaire à Paris pendant la guerre: Villemin, 1914–1919. Par F. LEJARS. Paris: Masson et Cie. 1923. Pp. 364. Fr.10.

M. Lejars is professor of clinical surgery in the Paris Faculty of Medicine and was during the war chief medical officer of the hospital about which he has written a book. He has given us a really charming work. Some philosopher has said that "there is something not altogether unpleasing in the misfortunes of our best friends," and when we recollect the strain which was felt by our medical establishments during the early days of the war, it is cheering to read Prof. Lejars's account of the Villemin Hospital. The building was old and had been *déclassé* for some 30 years. It was started in a secularised convent belonging to the Recollets (an order of reformed Franciscans) during the Revolution, and in 1860 was handed over by the Assistance Publique to the War Office as a military hospital, and refitted and enlarged under the name of l'Hôpital St. Martin. In 1913 its name was changed to that of l'Hôpital Militaire Villemin, in honour of the famous Jean Antoine Villemin, 1827–1892, who had proved in 1868 that the virus of tubercle is specific and inoculable. For all that the building had been condemned so far back as 1892, and was only a hospital in name, "*à titre provisoire*" while awaiting a successor. Threatened men live long, says our English proverb, and as Prof. Lejars remarks, "*le 'provisoire' est une des meilleures conditions de durée.*" Though *déclassé*, the hospital did receive patients into its 556 beds, the average annual numbers in the five years preceding the war being something over 2000. On August 2nd, 1914, various medical men, mainly civilians who were too old to go to the front, joined at the Villemin Hospital, most of them, including Prof. Lejars himself, as he openly confesses, entirely ignorant of any military service. The first chief medical officer was Gaucher, to whose memory Prof. Lejars pays a warm tribute —he died, worn out, on Jan. 25th, 1918. During the period August 2nd, 1914, to June 6th, 1919, 30,546 patients of all ranks were treated in the hospital, with a mortality of 847. The trials, struggles, and successes of the hospital must be read in Prof. Lejars's pages; suffice it to say admirable work was done by the devoted staff, and neither "Big Berthas" nor the attacks of aeroplane bombers could shake their courage. Prof. Lejars concludes with some reflections which are well worth reading as to the absolute necessity "for fusion and intimate collaboration, for the good of the service and of the country, between the (medical) officers of the active staff and those of the reserve (*complément*)."

ANATOMY.

Text-book on the Artistic Anatomy of the Human Form. By U. W. A. PARKES, Lecturer on Artistic Anatomy at St. John's Wood Art Schools. London: John Bale, Sons, and Danielsson, Ltd. 1923. Pp. 127. 10*s.*

EVEN to the professional anatomist there is a certain amount of interest in encountering the commonplaces of human anatomy under conditions differing from those to which he is accustomed. This book presents the skeleton and many of the muscles from the point of view of the artist, concerned with their bearing on the outer form. It is illustrated, mostly by the author's own competent pencil, to show how the structures he describes affect the surface appearances. The result is the presentation of unusual anatomical values, the whole done in a short and readable form. It is in no spirit of hypercriticism that we call the author's attention to a few anatomical errors. Thus, subcutaneous fat is not under the investing fascia, nor does this latter enclose the rectus abdominis; the action of the trapezius might be revised—as, indeed, might the account of the mechanism of raising the shoulder, apart from the analysis of this movement. Again, in some of the figures, certain changes might be effected in future issues: in the male skeleton, in the figure on p. 11, the upper end of the radius appears to be in full supination, while the hand, and seemingly the lower end of the radius, are semi-pronated; the drawing of the serratus magnus muscle gives it an origin from the ninth rib, although the account given in the text is the one usually accepted. Such errors, though it would be better if they had not occurred, hardly detract from the value which this book will have, we expect, in the eyes of students of artistic anatomy. A short and clear account is given of the distribution of weight by the skeleton, and we would suggest that this theme might be enlarged upon and made into a standpoint from which the artist could view the effect of any action on even the most distant parts of the body, and hence on its form; yet perhaps this would be foreign to the idea of the author and would tend to widen the scope of the book too much. The work is well produced in every way.

Gray's Anatomy. Twenty-second edition. Edited by ROBERT HOWDEN. London: Longmans, Green and Co. 1923. Pp. 1378. 42*s.*

A BOOK which has passed into its twenty-second edition may be considered to be beyond criticism. Prof. Howden's able editorship during the last 20 years has made "Gray" what it is to-day, an English text-book of anatomy second to none. A good feature of the work to English or British eyes for many years has been the prominence justly given to work done at home, and in this matter the present edition has not fallen behind its predecessors. It is thoroughly up-to-date. Gray's Anatomy has always been a favourite with English students, and the oldest among us remember it as a sheet-anchor when at sea in early days; if we regret the change in nomenclature which has been adopted, it does not lessen our affection for the book, though it may affect the frequency of our consultations. The present edition has some 60 new figures and has been revised in general, and is worthy of the place of honour it occupies.

AIDS TO PUBLIC HEALTH.

By W. G. AITCHISON ROBERTSON, M.D. London: Baillière, Tindall and Cox. 1923. Pp. 160. 3*s.* 6*d.*

THIS volume is designed to refresh the memory of the student as to the main facts in the various subjects in public health, and the useful rôle has been fulfilled. The book makes the usual survey of hygiene and public health, successive chapters dealing with meteorology, air ventilation and heating, water-supply, house sanitation, drainage, disposal of sewage, house and hospital construction, food, disinfection, infection, infectious diseases, the soil and disposal of the dead, diseases due to occupation, schools and medical inspection, vital statistics, and sanitary administration. The summary of these subjects which can be made in 160 pages is necessarily sketchy and such curtailment of statements implies not only omissions of important matter, but also the inclusion of statements which need expansion and even modification to render them useful and accurate. Assuming, however, that the student has studied larger volumes, and above all has engaged in the various branches of public health work, he will find the volume useful.

RADIOACTIVITY.

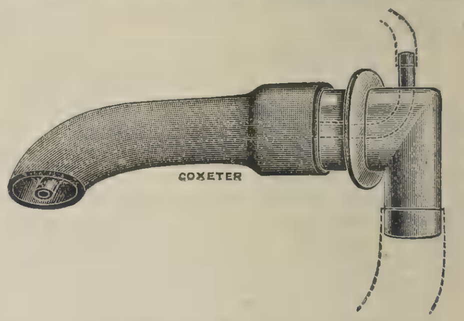
By KASIMIR FAJANS. Translated from the fourth German edition by T. S. WHEELER, B.Sc., A.R.C.Sc.I., A.I.C., and W. G. KING. London: Methuen and Co., Ltd. 1923. Pp. 138. 8*s.* 6*d.*

Prof. Fajans's book has been well known to specialist workers in physics and chemistry, and such will welcome the translation, as it will present an extremely readable account of radioactivity and cognate lines of work to a much wider circle of readers. It may be said at once that, although hardly a literal translation, the enthusiasm of Fajans for this branch of work, so apparent in the original German, is not lost in the English edition. The wonderful developments which have taken place since Becquerel's discovery of radioactivity in 1896, including the isolation of radium and other radioactive substances, the transformation products, and their position in relation to the ordinary chemical elements in the periodic table, are described. The nature of isotropes, both those whose origin can be traced as degradation products of radioactive elements and those which have been shown by positive ray analysis to occur in common elements, and the effect of these discoveries on chemical theory, are dealt with in a most lucid manner. The nature of the atom, the decomposition of some atoms by rapidly moving particles, such as X rays, follow as a natural sequence to the earlier chapters. Although so brief a time has elapsed since the first experimental observations were made in this field, it is remarkable that the story as presented in this book should be so consecutive, and also gratifying that results of such great importance should be published in a form that anyone with only a slight knowledge of physics and chemistry can benefit. The specialist will find the numerous references to original papers and the notes given at the end of the book invaluable.

New Inventions.

IMPROVED ANÆSTHETIC APPARATUS.

Two small modifications of everyday anæsthetic apparatus have proved useful and may be of interest. 1. An improved airway which, as shown by the illustration, consists of an ordinary airway of the Phillips type, to the mouth-piece of which is fitted a removable and reversible metal elbow-piece similar to Clayton's, and of only sufficient length to afford firm attachment to a thick-walled rubber tube of $\frac{1}{2}$-in. bore.



A narrow bore angular tube is fitted into this elbow so that its outer end forms a nipple for attaching to the delivery tube of any anæsthetic apparatus, the inner end being prolonged within the airway by a thin rubber tube of nearly equal length. When used with chloroform from a Junker, a short length of rubber tube of wide bore may be attached to carry away the anæsthetic vapour from the operation area—e.g., in ophthalmic operations. By increasing the length of this tube a degree of re-breathing may be obtained, whilst when gas and oxygen is used a bag is attached to the end of the tube. The small bag from a Clover's apparatus has usually been used, with the tap open to serve as a blow off; it is connected up with a special adapter and clipped in a convenient position at the edge of or below the table.

2. A modified three-way (Barth's) gas-valve. The passages through this valve are, as a rule, rather narrow, but when in the usual position for gas and oxygen administration—i.e., that giving a partial re-breathing—it will be seen that the available airway is much restricted by the rotating septum to which the inner (inspiratory) valve is fixed. Further, if left wet this valve is liable to stick. In use, unless accurately adjusted and watched, the action of the valve causes emptying of the bag. The inspiratory valve has therefore been entirely removed, which permits of all openings being enlarged. In use, the amount of re-breathing depends on the rate of flow of the gases, the bag being always filled by expiration. The escape of expiratory gases from the bag is controlled by the degree of closure of the expiratory valve only, an additional "click" being provided to keep this valve in its usual working position—i.e., about half closed. In addition, an adjustable elbow is fitted over the expiratory valve mounting, and carries away expired gases by a rubber tube below the table.

The makers are Messrs. Coxeter and Son, Pancras-road, London, N.W.

London, N.W. R. J. CLAUSEN, M.B., B.S. Lond.

THE LANCET.

LONDON: SATURDAY, OCTOBER 27, 1923.

THE PRINCIPLE OF THE THING.

"While willing to serve the community to the best of its ability, and to make any satisfactory arrangement to this end with the representatives of the community, the medical profession is not prepared to accept the position of being under the dominance or control of a particular section."

THE Panel Conference has met and has amply endorsed the statement of the issue in the present crisis contained in the above words. The words are those of the Insurance Acts Committee in the latest stage of the negotiations between the Minister of Health and practitioners working under the National Health Insurance Acts. The representatives of panel committees were unanimously willing, as the report of the Conference on p. 947 shows, to commit their constituents to a refusal of further service under the Acts rather than continue to serve under the conditions offered. The Minister, it appears, admits his reponsibility for the financial burden which is to be put on the community, but it seems to us that he hardly grasps the full responsibility placed upon him by Parliament for the nature of the services given in return. The medical profession looks, and rightly looks, to the Minister for protection against the unsympathetic attitude of approved society officials, who are clearly fighting for something more than their own autonomy. They desire, overtly or implicitly, control of the national insurance system as a whole, and of the medical benefit in particular, from control of which they were expressly excluded by the Act of 1911. Clause 14 (1) of this Act is so precise and categorical that it is hard to see how any doubt upon this point can have arisen. There is, we are confident, no inherent dislike on the part of doctors for approved societies or their officials, no desire to give them less than their due in administering sickness and additional benefits; there is, in fact, a cordial coöperation steadily growing up in the local working of the Acts. Our special commissioner (p. 951) bears testimony to this in the Manchester and Salford area. But the unreasoning rancour shown by some of these officials towards insurance practitioners as a group affords ground for suspicion and hesitation on the part of the medical profession. Dr. H. B. BRACKENBURY himself, who presided over a series of round-table conferences of all interests, and seemed at one time hopeful of an arrangement by consent, is now sadly convinced of the futility of such conference inasmuch as the public statements of some of these officials do not agree with their private undertakings.

It is this question of the outside control of insurance medical service which must now be decided once and for all. It is the real crux of the controversy and the reason and justification for the unanimous refusal by the Panel Conference of the terms offered by the Minister of Health. The tone of the conference was firm and restrained, and little doubt exists that its representatives can make good their undertaking to call in the resignations of the necessary proportion of the doctors on the panel. Faced with this evidence of solidarity the medical profession can await the outlook with confidence. The national insurance committees have never yet, as Sir WILLIAM GLYN-JONES points out (p. 961), risen to their full stature, but they are not going to stultify themselves by attempting to administer medical benefit with the scanty help of those who stand aside. Action has not been hasty on the part of the doctors. Prolonged efforts have been made on the professional side to rectify as far as possible the conditions complained of by approved society officials. The new regulations when (perhaps we should write "if") they are issued, will show how far the insurance medical service has been willing to go. Nevertheless, the societies insist upon a cheap service, and have taken upon themselves to discuss what the actual remuneration for this service shall be. Now it cannot be reiterated too often that the societies do not pay the doctors; they are the recipients, as trustees, of that portion of insurance funds allotted for sickness benefit and administrative expenses; they have nothing whatever to do with the medical benefit funds, and it may be feared that, should they attain the position to which they aspire, of administrators of the whole fund, they would gladly cut out the Ministry of Health whose regulations they have always found irksome.

This is the danger which the medical profession clearly envisages in 1923, as it did in 1911–12, and once again a firm stand is to be made. On matters medical the profession should and must be given a free hand. There is in existence adequate machinery to deal with delinquents in its own fold, and the new powers given to panel committees will enable them to exert a much tighter control on any who are slack or devoid of principle. Approved society officials have attacked the insurance medical service as a whole because of their local knowledge of the "black sheep," whose numbers must be small indeed, judging by the complaints which are substantiated. The present action of these officials would drive out of the service precisely the type of practitioner whose coöperation is necessary to maintain its standard. We believe that the approved societies will find it hard to convince the insured public that the community will gain by usurpation of the control which was refused to them in 1911. It is a misfortune which was foreseen and which yet could hardly have been avoided, that the Insurance Acts should create vested interests with great political power. The spirited action of the Panel Conference is likely to prevent this power from becoming a danger to the community. Unless doctors serving voluntarily under the Insurance Acts are allowed to give their service in accordance with the best traditions of their profession, they prefer to wash their hands completely of a system which is in peril of becoming derogatory to their calling. In any case they will find a way of serving the community.

PHYSIOLOGY AND SURGERY.

TRADITION dies a slow death and custom often remains the only basis for perpetuating a system which long ago should have been superseded by methods more in conformity with modern intellectual conceptions. The idea that surgery is primarily a mechanical art is ineradicably fixed in the minds of many who do not practise it, and, indeed, in some of those who do. Physiology has always been an applied science, and progress in it waits upon the advance of knowledge in other directions. The greatest service that can be done to physiology is the stimulation of research in such sciences as those of chemistry, physical chemistry, and pure physics. That surgery must always be based upon physiology, whilst physiology must derive benefit from the advance of surgery, is so clear to the thinking active surgeon that it is always a matter of amazement to him that the generally accepted training of the surgeon is not based more upon this conception of the interdependence of the two branches of knowledge.

Sir EDWARD SHARPEY SCHAFER, in the first Victor Horsley Memorial Lecture, which we print in full in this issue of THE LANCET, chose as his subject the relations of physiology and surgery, a subject peculiarly fitting for a lecture instituted to commemorate a surgeon of HORSLEY'S stamp. In his most stimulating address he shows how false is our belief in the adequacy of the training the surgeon obtains by a prolonged apprenticeship in the dissecting room. Nothing but the trammels of tradition have allowed a system to persist under which the physician graduates through the physiological laboratory whilst the surgeon is relegated to the dissecting room. Powerful though many of the remedies of the physician are, the upset to normal physiology effected by the activities of the surgeon is, on the whole, enormously greater and infinitely more frequently brought about. Surgery, against all the dictates of scientific methods, seems usually to have worked backwards. Cachexia strumipriva had to result from complete removal of the thyroid before investigation of the functions of this gland took place; gastro-jejunostomy, introduced on a sound basis, was applied to relieve other conditions on assumptions which were afterwards proved actually to be totally wrong; whilst the large bowel was removed in man before the resulting changes in physiology brought about by its absence had been studied in animals. The wonderful power of adaptation possessed by the body has masked and remedied what otherwise would have been evil results. But much suffering might have been avoided if surgical problems had been tackled by the methods followed in other sciences. Sir EDWARD SHARPEY SCHAFER points out how our legislation hinders investigation in medicine and surgery. It is time to modify the dictum that anatomy is the basis of surgery. A correct knowledge of anatomy is as essential to the art of surgery as an acquaintance with Greek to the study of the classics. Each science has its own technique, the mastery of which is a necessity. There is a tendency to belittle the place of technique in surgery at the present time. Nothing could foster delay in progress more than this. The manual work of the surgeon must be as perfect as that of the chemical or physical investigator, whose exactness is proverbial. The mistake is to suppose that such technique is based solely on the teachings of anatomy. Such physiological facts as the reaction of the tissues to the trauma of operating, or the changes of digestion brought about by new anatomical relations, are of vast importance. The avoidance of the dangerous symptoms which sometimes follow the operation for exophthalmic goitre will never be achieved by anatomical studies, nor could it have been argued from structure that, in order to anastomose the intestine, peritoneal surfaces must be brought and maintained in apposition.

Such examples might be multiplied almost indefinitely, but sufficient has been said to show the paramount place which physiology plays in the problems of surgery. It is not surprising to learn that the greatest surgeons have nearly always been physiologists. VICTOR HORSLEY was a great example of this, and it is well to be reminded that LISTER himself made many physiological investigations. The association of the surgeon with the physiologist in many of our London hospitals is not as close as is desirable. Whilst the surgeon has everything to learn from the physiologist, there is no doubt that he can contribute hugely to the common store of knowledge and so make physiological experimentation conform more to the actual conditions present during life. For it must be admitted that many of the experiments of the physiologist are crude in their commencements, so that at first the deductions made from them require careful evaluation. The ideal in all physiological experiments is to disturb as few factors as possible and those affected should be known. Only in this way can we obtain unequivocal results. It seems that the realisation of this ideal would be made appreciably nearer by a closer association of the surgeon with the physiologist, and there are not wanting signs that this is being attempted.

PUBLIC HEALTH IN LOCAL LEGISLATION.

THE Special Report of the House of Commons Select Committee on Local Legislation in 1923 gives prominence once again to a matter to which once again we draw attention. "Most of the Bills which your Committee have considered during this, as in previous sessions, contained provisions relating to public health, sanitation, and other matters which were set out in the Special Report of 1922. Your Committee would emphasise what they have pointed out in previous years, that, as many of these powers are now usually sought, a consolidation and extension of the Public Health Acts, 1875–1907, so as to include such powers under general legislation, would be extremely beneficial to local authorities." Owing to the inexplicable delay in printing the Local Acts,[1] comment on their general contents must be suspended till the text is available. Even the Special Report from which we have quoted, though ordered by the House to be printed as long ago as July 31st, has only now appeared. The Report, however, mentions an interesting clause in the Chesterfield Corporation Bill which empowers the local authority to prohibit squatters or gipsies who prove themselves a nuisance or injurious to health from settling within certain limits. The Report also comments on the measures for tuberculosis prevention authorised in the Torquay Corporation Bill. "Your Committee, bearing in mind the peculiar position of Torquay as a health resort, considered it necessary that any person having the charge, management, or control of any hotel, boarding-house, or lodging-house should compulsorily notify such cases to the proper person." There is no occasion for apologetics or for special treatment. Let all honour be paid to Torquay for its progressive attitude, but in the fight against disease there is no monopoly of the best weapons; what is good enough for Torquay is good enough for the rest of the country. Similarly the Maidstone Corporation Act (which received the Royal Assent on July 18th, but has only now appeared in print) exhibits all those public health provisions with which a modern borough seeks to equip itself—the measures for drainage and sewerage (including power to repair private drains), for properly ventilated larders in dwelling-houses, for an adequate system of domestic sanitation, for preventing the spread in Sunday schools of "infectious disease" (defined to include measles, German measles, whooping-cough, chicken-pox, and influenza), for the medical inspection of inmates of common lodging-houses in times of epidemic, for the removal of infectious corpses, for taking to hospital sufferers from pulmonary tuberculosis, for tracing infected clothes to laundries, for regulating ice-cream manufacturers, retailers of milk, and rag-and-bone merchants, for cleansing verminous houses, persons and children, and for the protection of meat-supply. Why should a progressive municipality be put to all the trouble and expense of obtaining these powers or of securing local improvements upon the general Public Health Acts when Parliament might confer these benefits upon the country as a whole?

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[1] See THE LANCET, Oct. 6th, p. 796.

Apart from the question of extending and amending the Public Health Acts the need of consolidating them remains as urgent as ever. The original measure is obsolete in its references both to the central and the local authorities entrusted with health administration, and everyone concerned is handicapped by having to work with a series of amending and overlapping enactments. On the second reading of the National Health Insurance (Consolidation) Bill, Lord ONSLOW indicated that it was hoped to consolidate also the law of housing and of public health. In the latter case particularly the process has long been overdue.

Annotations.

"Ne quid nimis."

HARVEIAN CELEBRATIONS AT THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ON Thursday, Oct. 18th, being St. Luke's Day, after the delivery of the Harveian Oration, which we published in our issue of Oct. 20th, the Royal College of Physicians of London held the usual Commemoration Dinner. Sir Humphry Rolleston, the President, presided over a large assembly of officers and Fellows of the College and their guests, who included the Minister of Health, the President of the Royal College of Physicians of Edinburgh, the President of the Royal College of Surgeons of England, the Medical Director-General of the Navy, Air-Commodore Munro, Lord Justice Atkin, Lord Chelmsford, Dr. R. W. Innes Smith, Prof. Langley, and Sir Squire Sprigge. The health of Prof. Starling, the Hunterian orator of the year, was proposed in happy terms by Dr. John Fawcett, the Senior Censor of the College, whose recognition of the great physiologist as being *in esse* and *posse* a great physician was received enthusiastically by an audience which knew the long and distinguished tale of Prof. Starling's medical war history. The closing section of the Harveian address was an exact illustration of the way in which the highest and most elaborate physiological researches can be brought to play their part in practical therapeutics. Prof. Starling, in reply to the toast, brought out the interesting fact that the choice of a physiologist to deliver the Harveian oration, which is the greatest distinction that a Fellow of the College can be asked to enjoy, had one particularly interesting precedent, for the last time that the oration was delivered by a Fellow of the College, not holding a clinical position, was when the Harveian orator, in 1873, was Prof. George Rolleston, Professor of Anatomy and Physiology in the University of Oxford, and father of the President of the College to-day. Sir Humphry Rolleston, in proposing the health of the guests, to which the Minister of Health and Lord Chelmsford replied, alluded to the award of the Baly medal to Mr. Joseph Barcroft, the Bisset-Hawkins medal to Dr. T. M. Legge, and the generosity of Dr. R. W. Innes Smith in presenting to the College a portrait of Sir Charles Scarburgh, which he had traced from the Temple Newsam Collection, lately dispersed.

STRICTURE OF THE ŒSOPHAGUS FOLLOWING TYPHOID FEVER.

Dr. P. P. Vinson,[1] of the Mayo Foundation for Medical Education and Research of the Minnesota University Graduate School, remarks that ulceration in the œsophagus is one of the rare manifestations of typhoid. In 2000 autopsies on typhoid cases reported by Hölscher the condition was found only once. On the other hand, Louis found œsophageal ulceration in 7 out of 46 typhoid autopsies, and Mitchell in 1 out of 56. In 1904 Thompson recorded three personal cases of œsophageal stricture following typhoid, and collected nine others from the literature. Turner had another in 1902, since when Dr. Vinson has been unable to find a report of any further case. He now records 13 cases of stricture of the œsophagus following typhoid in patients aged from 13 to 47, which have been observed at the Mayo Clinic since 1909. Of the total 26 cases only 13 occurred in women. The stricture was usually situated in the lower part of the œsophagus, corresponding to the commonest site of ulceration. Of the 13 cases previously recorded, three died from lack of treatment, one died during treatment, and three had gastrostomy performed. The remaining six were apparently cured by the passage of sounds, seven of the Mayo Clinic series had had gastrostomy performed elsewhere, and in four of these the stricture was impermeable. In six of the patients without and in two with gastrostomy normal deglutition was restored by dilatation with graduated sounds.

THE BLOOD PRESSURE IN SCARLET FEVER.

Dr. R. Doria,[2] of the isolation department of the Umberto I. Policlinic, Rome, reviews the literature, including the papers of Teissier and Tanon (1908), Nobécourt and Tixier (1908), and J. D. Rolleston (1912), and records his own observations on 67 patients aged from 16 months to 32 years; 32 were males and 35 females. The maximum and minimum pressures were examined by the auscultatory method with Riva-Rocci's instrument. The measurements were generally taken at the same hour, usually in the early afternoon, and in some instances in the morning. No differences were observed between males and females of the same age as regards either the maximum or minimum pressure. Dr. Doria's conclusions were as follows: (1) Scarlet fever causes a fall of blood pressure like almost all the acute infectious diseases, with the exception of malaria. (2) This fall of blood pressure takes place more or less early, and may appear in the pre-eruptive, eruptive, or desquamation stage. It is more or less persistent, lasting usually a week at least. Its intensity varies, being most pronounced in severe cases, of which there were 14 in the present series, while in others it is slight or barely perceptible. (3) The fall of blood pressure is obviously connected with the general vaso-dilatation and weakness of the left ventricle in scarlet fever. It is not necessarily due, even when it is pronounced, to severe organic lesions of the suprarenals. (4) There is usually a more or less marked diastolic hypertension, the diastolic pressure showing a tendency to increase throughout the disease. Sometimes in convalescence there is for a short period a fall in diastolic pressure, which should serve as a warning of a sudden attack of cardiac insufficiency. (5) Accidental rises of the maximum pressure have no special prognostic value, and are often due to painful complications. A rise of the maximum pressure to the normal level in association with albuminuria should make one fear the onset of nephritis, whereas albuminuria without a rise of blood pressure does not, as a rule, precede nephritis. (6) Injections of convalescent and anti-streptococcic serum, the serum disease, and injections of vaccine cause a more or less considerable fall of blood pressure. Apart from these cases a sudden fall of the diastolic pressure, especially if it is associated with a diminution of the diastolic pressure, indicates the onset of a complication, particularly one affecting the heart. (7) The hypotension of scarlet fever cannot be attributed to the diet, because it is found in patients who are taking an adequate supply of nourishment, and sometimes appears at a very early stage, nor can it be explained by the patients lying in bed as it often persists after they have got up.

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[1] Medical Clinics of North America, July, 1923.

[2] Il Policlinico, Sezioen Pratica, Sept. 10th, 1923.

BILHARZIASIS IN THE DONGOLA PROVINCE OF THE SUDAN.

THE Dongola Province is one of the most fertile agricultural areas of northern Sudan, producing crops of millet, wheat, and cotton. Irrigation was formerly performed by the historic Sakia, but this is now being superseded by a series of pumping stations installed by the Government. It appears that bilharziasis has recently appeared in the Province, the infection having been introduced by the Egyptian labourers engaged on the irrigation works. The urinary form of infection caused by *Schistosoma hæmatobium* prevails and suitable intermediaries in the shape of fresh-water molluscs known as *Isodora innesi*, originally determined by Leiper as a possible host, abound in the irrigation canal. The susceptibility of this particular variety of snail to infection not having been experimentally determined, R. G. Archibald attempted to infect a number of them artificially with miracidia obtained from a local case of bladder bilharziasis and has succeeded in doing so. He has recorded his experiments in the Transactions of the Royal Society of Tropical Medicine (xvi., 7, 419). It was soon ascertained that this species is very susceptible, but owing to the high mortality-rate in captivity, it was impossible to state what was the actual proportion of snails infected. The characters of the cercariæ derived from these artificially infected snails agreed on the whole with those already published, and measurements taken from 30 specimens also agreed closely with those of Manson-Bahr,[1] Fairley, and Faust.[2] With the active cercariæ derived from an infected mollusc Archibald succeeded in infecting a monkey which was killed in the seventh week. A number of adult schistosomes with the morphological characters of *S. hæmatobium* were found in the portal vein. Armed with this knowledge, the following measures are suggested for the eradication of the disease in the Dongola Province: (1) The cure of cases of the disease by means of antimony therapy should be undertaken. This, even under the most ideal conditions, can be only partially successful, since large numbers of infected natives cannot be induced to undergo the treatment; nor is it possible adequately to check the results by laboratory investigation. There are always large numbers of latent cases with either very slight or non-existent symptoms which escape detection. (2) Measures undertaken with the idea of destroying the intermediary host appear to be more hopeful. This particular snail dies if deprived of water for a period longer than six hours. An intermittent system of irrigation would give the canals time to become dry and in this period the snails would die off, but this must be combined with measures undertaken to clear out the ponds and collections of water which occur in the neighbourhood of the sluices. This should be done at periodic intervals and the natives should be encouraged to keep domestic ducks which feed on these snails. Wiring of the intake pipes as a means of preventing the ingress of molluscs on floating weeds is suggested as a subsidiary measure. Other suggestions are the supply of well water to the natives for ablution and drinking purposes, and the initiation of propaganda measures in the form of illustrated pamphlets printed in Arabic, calling attention to the danger of drinking water from the irrigation canals, and illustrating the part played by the mollusc in the spread of the disease.

SCIENTIFIC INSTRUMENTS.

IN the first number of the *Journal of Scientific Instruments* the chief item of medical interest is that on a new Recording Kata-Thermometer, by Dr. E. H. Schuster. The original instrument by Dr. Leonard Hill was designed to measure the power of the air to cool the human body. The actual observations necessitated temperature readings and the time required for certain temperature changes. In the new apparatus described this is carried out automatically, and a tracing is made consisting of a horizontal line broken every quarter of an hour to give a record of elapsed time, and above this a series of vertical ordinates to represent the number of seconds taken by the instrument to cool through the specified range. This appears to be a useful modification of the original design, and it is likely to be of great industrial service to have an instrument which automatically records a very important factor in the hygiene of the workshop. It is gratifying to see in the production of this journal that the joint efforts of the Institute of Physics and the National Physical Laboratory have borne good fruit. Provided it gets the necessary support from investigators and inventors it is certain to find a place in the ever-increasing periodical literature of the scientific man. The contents of this first issue are extraordinarily varied, the contributions being from applied mathematicians, electrical experts, chemists, inventors; there is included a brief but very practical article on the Chain Balance, by Sir Flinders Petrie.

THE BOARD OF CONTROL FOR SCOTLAND.

THE Ninth Annual Report of the General Board of Control for Scotland records an increase in the total number of insane of 229, and a considerable increase in expenditure. Every district had sufficient accommodation for its insane except Glasgow, some of whose patients are placed in more or less remote asylums, and can therefore not easily be visited by their relatives. The reopening of the Edinburgh District Asylum, following its evacuation by the military authorities, has been accompanied by various structural improvements, and entailed the transference of 600 patients. Statistics apart, the bulk of the Report is composed of abstracts from the Medical Commissioners' reports on each institution, including the lunatic wards of poor-houses. The impression created by these reports is one of excellent management and general efficiency. Such criticisms as are made, which apply in some cases to only one or a few institutions, concern the lack of facilities for proper classification of patients, and in particular for isolating recent cases, the imperfect isolation of the tuberculous, and the neglect of post-mortem examinations. There is a remarkable absence of any adverse criticism of food or clothing.

A feature of the Board's work which evidently causes some anxiety concerns the disposal of the mentally defective. The imperial grant for this purpose covers the maintenance in institutions of only 1477 defectives, and an additional grant recently made only partly covers the expenses of 200 more. Three districts have therefore undertaken the institutional treatment of numbers of defectives at their own expense. The respective merits of home, institutional, and boarding-out treatment at various ages are discussed at some length. The absence of accommodation for ordinary defectives over 16 years of age has led to the practice of defectives being retained in their own homes where these are considered suitable, or where the parent is unwilling or refuses to part with them, or they are placed under guardianship. Many of these defectives are of an age when special care and institutional training, particularly in the form of industrial and farm colonies, are required to complete and consolidate the education and training gained in special schools and classes and in defective institutions. Hitherto, if they cannot be kept at home, or if the home conditions are unfavourable, or their mental conditions are such as to demand institutional care, these defectives have been certified under the Lunacy Acts and placed in asylums. The Board do not view this practice with favour.

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[1] Parasitology, January, 1920, Observations on Bilharziasis among the Egyptian Expeditionary Force.

[2] The Journal of Parasitology, June, 1919, Notes on South African Cercariæ.

ACTIVE AND PASSIVE IMMUNISATION IN TUBERCULOSIS.

IN a communication to the *Deutsche medizinische Wochenschrift*, published on Sept. 21st, Prof. Paul Uhlenhuth has given an account of laborious investigations carried out by himself and his colleagues during the past few years. They have attempted in various ways to immunise experimental animals to tuberculosis by the injection of the products of tubercle bacilli treated in an almost infinite variety of ways. The most effective means of robbing the tubercle bacillus of its waxy and fatty capsule proved to be treatment of tubercle bacilli for two days with chemically pure trichlorethylene at room temperature, or at 37° C. But whether the various constituents of the tubercle bacillus were injected singly or together, the fate of the rabbits and the guinea-pigs was the same; they fared no better than the control animals when inoculated with virulent tubercle bacilli. No better results were obtained with the injection of tubercle bacilli which had been exposed to circulating steam for two hours, or to a dry heat of 150° C. for half an hour. Other experiments were also carried out with tubercle bacilli treated with antiformin and then washed with saline solution, dried, and pulverised. The injection of an emulsion of this pulverised tubercle powder into rabbits and guinea-pigs failed to avert death from tuberculosis when these animals were inoculated with virulent tubercle bacilli, and Prof. Uhlenhuth confesses that he is very pessimistic as to the likelihood of immunity to tuberculosis being achieved by the administration of dead products of the tubercle bacillus. Another line of research on which he has been engaged has been to inoculate cattle with a 21-year old avirulent strain of tubercle bacilli, and to inject the serum obtained from these cattle into guinea-pigs. The response of the guinea-pigs thus treated has been quite disappointing; their reaction to a subsequent inoculation with virulent tubercle bacilli has not been appreciably better than that of the control animals. So far Prof. Uhlenhuth's account is a long record of uninterrupted ill successes. But at the end of his paper he refers to some hopeful clinical investigations made by his colleague, Prof. Czerny, who has given to tuberculous children the serum obtained from cattle inoculated with large doses of avirulent bacilli. Prof. Czerny's account is to be published in the forthcoming number of *Jahrbuch für Kinderheilkunde*. Prof. Uhlenhuth is, however, able to state that the results obtained by Prof. Czerny in 20 cases of severe tuberculosis of the lungs, larynx, and other organs were remarkably good, the response being considerably better than in the control cases given ordinary bovine serum, or the serum of previously untreated horses and asses. Prof. Uhlenhuth hopes that extensive clinical research will be carried out on the lines indicated, and that with the judicious use of controls it should be possible to form a fair opinion of the merits of this form of serum treatment in tuberculosis.

A CURIOUS CONDITION OF THE SEMILUNAR CARPAL BONE.

A PECULIAR condition of the semilunar carpal bone, resembling osteo-malacia, is described by Prof. Dr. Sonntag.[1] In his opinion it occurs more frequently than the few reports would lead one to think. The disease can be compared to the condition found in the head of the femur in Perthes's disease, and to that of Köhler's disease of the head of the second metatarsal bone. The condition was first described by Kienbock in 1910, and since then reports have been published by Preiser, Guye, Frenkel-Tissot, Müller and Sonntag, numbering some 30 cases in all. Prof. Sonntag now reports 12 cases occurring in the chirurgische Poliklinik in the University of Leipzig during the last year, and from this it appears that the disease must be of not very infrequent occurrence, were it only recognised. It is found in both sexes, between the ages of 17 and 45, rather more often in the right hand than the left, and chiefly among manual workers. In a few of the cases the semilunar bone has been removed by operation, when the following pathological changes have been found. Macroscopically the bone appears to be irregularly compressed proximo-distally, and sometimes it is found in several pieces, more or less adhering together, so that the pieces are removed separately at operation. The proximal joint surface shows the greatest changes; it is yellowish in colour and irregularly scarred, in parts either eroded or destroyed or split, and sometimes crumpled as though it were disturbed by the underlying collapse of bone. One case had a piece of cartilage raised up and projecting into the joint cavity, the defect being filled with granulation tissue. The overlying ligaments are often much hardened with callus, while the neighbouring bones show deformatory changes. Microscopically the proximal part of the bone shows necrosis of the spongiosum, with new formation and destruction of bone tissue, osteoid tissue surrounding the laminæ, deposition of calcium, connective tissue formation, and cellular infiltration in the neighbourhood of the necrotic foci. There is never any evidence of tuberculous or syphilitic infection. The changes resemble rather incomplete healing of a fracture, but the condition cannot be explained on this basis owing to the fact that half the cases occur in the absence of any recognisable trauma. In those cases in which a trauma has been present X ray examination shows no changes in the early stages, but only some months later reveals the characteristic changes, thus suggesting that the fractures are secondary, and occur as a result of the previous necrosis of bone. The latter may be due possibly to some interference with the blood supply, which may in some cases be consequent to slight trauma causing the condition generally diagnosed as contusion or sprain. These cases might be called post-traumatic. In the group in which no trauma is recognised the condition may possibly be caused by repeated small occupational injury.

Constitutional changes, such as late rickets, can be excluded, as the general condition of the patient is usually very good. Clinically three stages may be recognised: (1) symptoms of joint irritation (lasting a few days or weeks); (2) a comparatively symptomless stage (lasting a few weeks or months); and (3) the stage when the condition is well marked as a clinical entity, with an acute onset followed by permanent pain of moderate severity. In the non-traumatic variety the trouble develops after one or more acute attacks (which are, however, less acute than in the traumatic variety), until a chronic stage is reached. The clinical picture in an acute attack, which is usually brought on by some extra work or overstrain, and brings the patient to the doctor, is as follows: (*a*) pain with active and passive movements, especially on performing hard work; (*b*) localised pain over the semilunar on the dorsal and palmar aspects, mostly on hyperextension, but also on hyperflexion, and on pulling the hand or jarring it longitudinally; (*c*) swelling of the soft parts, mostly on the dorsal spect; (*d*) limitation of movements in all directions; (*e*) sometimes crepitation; (*f*) sometimes shortening of the whole wrist joint. Together with these symptoms there is loss of power in the hand, and sometimes muscular atrophy. The X ray picture in the early stages may be normal; later the characteristic changes consist in alteration of the structure, showing disturbance of the laminæ, with areas of density and opacity, arranged in patches or in stripes. The whole bone is compressed proximo-distally, like an impacted fracture. The proximal surface is irregular and less rounded, and often shows projecting particles. The bone may be divided into two or more pieces, or one corner may be cut off by a cleft. The other bones may be displaced. The diagnosis of a typical case can usually be made without difficulty on the clinical appearances once these are recognised, but in the early stages the condition cannot be distinguished from a contusion, and usually is diagnosed as such unless an X ray is taken at a later date. In Prof. Sonntag's series, after the first few cases were recognised, the remainder were diagnosed clinically in the out-patient department by the assistants and students. The condition can be diagnosed from fractures, dislocations, tuberculous affections, and osteo-arthritis by the X ray. Contusion and distortion give similar pictures, but can be distinguished by the fact that in the semilunar disease the disability continues much longer and tenderness is limited to the semilunar. The prognosis cannot be definitely stated without further and longer observations on more cases, but it can be said from the present experience that the prognosis respecting cure and function is very doubtful. The condition is usually chronic, and often leads to true osteo-arthritic changes. It is also not known how many slight cases cure themselves, but when once X ray changes are demonstrable it is likely that the disability will persist for years, if not for ever. Treatment is still uncertain. Conservative measures appear to give the best results; in the early cases treatment as for contusion; in the late as for osteo-arthritis. Operative removal of the bone has been carried out, but so far has not been uniformly satisfactory in relieving the symptoms.

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[1] Deutsche medizinische Wochenschrift, Oct. 5th, 1923.

ETCHER AND SURGEON.

THE etchings of Sir Francis Seymour Haden have recently been reproduced and published in one volume, under the editorship of Malcolm C. Salaman, a collection which should have a special interest for members of the medical profession. It is but seldom that distinguished service to the science of medicine is combined with outstanding work in any field of art, yet in the late Sir Francis Seymour Haden there were united a surgeon and an artist of renown. During his medical student days, part of which were spent in Paris, Haden devoted much of his spare time to study in the art schools, less from any artistic inclination than with the object of training hand and eye for surgical work. In after years he laid stress on the importance of such a training for medicine, saying, "How much sooner would the eye accustomed to observe and estimate closely differences of colour, aspect, weight, and symmetry, learn to gauge their aberrations as the signs which make up the *facies* of disease; how much better the hand, trained to pourtray them accurately, be able to direct with precision and safety the course of the knife?" Among his fellow practitioners Haden was noted for an instinctive power of diagnosis, which was attributed often to his disciplined sense of vision. Haden continued his practice as a surgeon until 1887. He pursued the art and study of etching mainly as a relaxation from his professional work, but it is his etchings which form the chief memorial of his life. He first exhibited in the Royal Academy in 1860 under the pseudonym of "H. Dean," but in 1864 he signed his work in his own name. In 1880 he founded the Society (now the Royal Society) of Painter-Etchers, whose president he remained till his death in 1910. In 1905 his distinction was recognised abroad by honorary membership of the Institut de France, the Académie des Beaux Arts, and the Société des Artistes Français. He gained the Grands Prix at the Expositions Universelles at Paris in 1880 and 1900. Though at first treating art as a handmaiden of medicine, Haden became, not merely a doctor with an interest in the beaux arts, but a great artist. He shared with Whistler, his brother-in-law, the claim to being one of the finest etchers of his day, and it is mainly to his work and enthusiasm that the revival of etching in this country is due. It is interesting to note that some of Haden's early drawings appeared in the pages of THE LANCET. In 1862 a report on surgical instruments shown at the International Exhibition of that year was given in our columns, illustrated by accurate drawings. Many of these engravings were from Haden's burin, and though they could hardly claim, on grounds of the subject, inclusion in a collection of his artistic studies, nevertheless they possess value as showing one manner in which Haden employed his skill to medical ends.

PREGNANCY AND TUBERCULOSIS.

FOR almost a generation our attitude towards the combination of pregnancy with pulmonary tuberculosis has largely been determined by the aphorism, credited by Osler to Dubois, that the woman threatened with pulmonary tuberculosis may bear the first accouchement well, the second with difficulty, the third, never. With rather halting logic, this aphorism has often been the excuse for the induction of abortion. The revolt against this course was started a few years ago by Prof. Forssner, of Stockholm, and of late his plea in favour of conservative treatment has found much support. Two of the most recent publications on this subject may briefly be referred to. In the annual report of the chief tuberculosis officer for Belfast for the year ending Dec. 31st, 1922, there is an instructive analysis of the result of pregnancy in 1375 tuberculous women. It was found that tuberculosis was not a very active cause of premature birth, and that among the 6·3 per cent. of the patients who miscarried, other causes than tuberculosis may have been at work. With regard to the effect of pregnancy on the clinical course of tuberculosis, it was found that, unless the disease was in an acute or advanced stage, the normal course of pregnancy was not disturbed. The second publication referred to is a paper by Dr. A. Scherer,[1] of Magdeburg. His analysis of 8520 definite cases of pulmonary tuberculosis in women of the child-bearing age showed that in only a small fraction could pregnancy be convicted of playing a sinister part in the propagation of the disease. In 103 cases the interruption of pregnancy had been advised, but only in 72 cases had this advice been followed. The remaining 31 women objected, partly on religious grounds, to this procedure, and they served as controls to the 72 cases in which the experiment of interrupting pregnancy was carried into effect. Only in 19 of these 72 cases did sacrificing the child prove beneficial or at least harmless. As for the 31 women who refused interference, as many as 22 not only went to term, but gave birth to living children, and when the mothers were examined some time later, they were still in comparatively good health. The lesson of Dr. Scherer's investigations is that pregnancy which occurs frequently at short intervals may, indeed, be injurious as far as tuberculosis is concerned.

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[1] Beitr. z. Klin. d. Tuberk., 1923, lxvi., 234.

but that interrupting pregnancy is a remedy of very doubtful value. Another German authority, Dr. Schellenberg, has published in the same journal statistics supporting the views of Dr. Scherer, and in Germany as well as in France the movement would seem to be gaining ground which favours the careful supervision of pregnant women in a sanatorium or other institution during and immediately after pregnancy.

A PROPOSAL FOR DEVOLUTION.

THE rapid development of our knowledge in preventive medicine has had and is having a profound effect on the administrative side of the public health service, as Sir George Newman has pointed out on many occasions. For example, the reduction of enteric fever can be attributed to improvement in water-supply, drainage, sewerage, and refuse disposal, and the control of food, including shell-fish. Still undefeated enemies from the preventive standpoint are respiratory diseases, heart and circulatory troubles, nervous diseases, and cancer. These must necessarily be attacked mainly from the personal aspects, and it is these aspects which have been raised by Lieut.-Colonel F. E. Fremantle, M.P., in a letter to the Prime Minister published recently. Colonel Fremantle thinks that the time has come for a reconsideration of health administration, which will lead to the crystallisation of the views of many people. He makes concrete proposals for changes in central administration which are revolutionary in character, being no less than the abolition of the Ministry of Health and the transfer of its powers to the Office of Works as to housing, Home Office as to local government (presumably including Poor-law work), and the Board of Education as to its health functions. Colonel Fremantle's suggestion, broadly speaking, is that with the development of our knowledge sanitary works of the character of water-supply and sewerage have no longer the importance which they had in the past, and that future progress is to be found in "research (under the Privy Council) and public enlightenment, which surely should come under the Board of Education." In considering his proposals some guidance can be gathered from the lost opportunities of the past. In 1871 Sir John Simon pointed out that the opportunity of placing a new branch of work—sanitary administration—on a sound basis was spoilt by grafting it on to an existing department which was bound to be to its detriment, and it has been abundantly shown that the association of health work with Poor-law administration was a mistake. Colonel Fremantle refers to the need of intelligent use of the human factor in every department of local or national government, as well as in what, because of former deficiencies, have been looked on as works of sanitation—water-supply, sewerage—or housing or hospitals. His use of the word "former" suggests that there is no need for further activity in these matters. Happy would be the area of which this could be said, but even if it were true of the large towns, there is much to be done in the vast tracts of county areas before even modest ambitions with respect to water-supply, sewerage, refuse disposal, and isolation hospitals would be satisfied. These are hardly cognate to the work of the Board of Education. We agree with Colonel Fremantle—that knowledge of prevention of illness and disease has reached the stage when public enlightenment is an even more important factor than it has been at any previous time, and for this the community requires a central department which has preventive measures as its chief function. But the Ministry of Health has since its inception behaved as though prevention were its prime object, and though the Ministry might well be relieved of certain extraneous duties it must remain the central department for all health matters. Decentralisation of some of the functions of the Ministry can only be recommended with stringent safeguards for efficiency and economy.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLII.—THE TREATMENT OF THE NEUROTIC.

SOME 40 articles have appeared in this series so far, each and all—with one exception, and that only apparent—dealing either with a definite type of disease or a definite objective symptom. The more impersonal and objective the condition, the simpler is its therapeutic consideration; specific ailments evoke specific treatment. Nothing could be more objective than club-foot, nothing more impersonal than scabies or pediculosis. By comparison, the physician called on to discuss the treatment of the neurotic and neurasthenic is doubly handicapped; he is not sure whether he is dealing with "disease" in the accepted sense of the word, and as a clinician he is frequently in justifiable doubt as to the reality of the symptoms he may be invited to dispel. He labours, however, under no misapprehension as to the commonness of nervous symptoms called neurotic or neurasthenic; were he prone to minimise their significance or ignore their universality, the rush of patients to the latest purveyor of mysterious panaceas, duly chronicled in the daily press, would remind him of his error. Whatever else is the matter is uncertain, this is clear, that there exists an immense amount of nervous ailment, real, exaggerated, or feigned, with which the practitioner of medicine should be able to cope, and for the continuance of which he cannot escape a modicum of responsibility.

It is unnecessary to indicate with greater particularity the nervous symptoms included under neurosis and neurasthenia, and it would be endless were it necessary. There is no kind or degree of ache or pain, of numbness or other paræsthesia, of fear or depression, of fatigue or ennui, of sensitiveness or apathy, of anxiety or moodiness, which cannot be set down to "the nerves" and for which relief will not be sought. No pretence is here made to define the landmarks or to specify their relative importance; no description can be given that will be universally applicable; but the physician in practice soon learns to separate the organic cases from the "functional," though here, as will be indicated later, lies a source of therapeutic trouble.

The Element of Fear.

For the successful treatment of the neurotic it is incumbent on the practitioner to realise in every instance that *there may exist in the patient's mind an element of fear or apprehension.* He has not the knowledge that the practitioner has; he is incapable of interpreting aright the symptoms that have begun to obtrude themselves into conscious notice; uneasy and concerned, a prey to too facile an imagination, especially if he is, as almost all of this class are, constitutionally sensitive, he seeks advice because he is dominated to some extent by foreboding. He may be afraid of having to relinquish his work, of having brought the trouble on by previous indiscretions, of failure on the part of the practitioner to diagnose his condition accurately, of insufficiency in respect of the treatment that will be suggested—in a word, he longs to be reassured about himself and his symptoms.

The physician's aim, therefore, must be to show by his investigation and his demeanour that he recognises the symptoms for what they are, that he is familiar with the course taken by such morbid conditions, and that he is confident a cure is practicable. He must never allow the patient to leave his room on the first visit without having taken definite steps to dispel apprehension. In this respect he might take a leaf out of the book of the "faith healer"; if he is true to his own intellect he cannot, like the latter, facilely deny the reality of disease, yet his optimistic outlook, and his willingness to take the burden of the patient's woes on his own shoulders, will serve as nothing else to relieve the patient's fears, and to inspire hope.

"*L'homme à Petits Papiers.*"

The successful practitioner, further, bears in mind the neurotic's *desire for a minute examination;* in his anxiety the latter commits a list of his chief symptoms to paper, lest any be forgotten at the consultation. Success in treatment depends equally on the physician's recognition of this fundamental trait in the neurotic mind. Studiously averting his eyes from the clock, the physician must "sit the neurasthenic out." No detail is too trivial to be mentioned, no form of examination otiose. It is a fatal mistake to hurry or harry the neurotic as he unfolds the story of his symptoms, and, as likely as not, his interpretation of them. The wise student of neurotic human nature is never hurried, never has to break off the consultation for a more important patient. *L'homme à petits papiers*, as Charcot dubbed him, has to be handled tactfully if he is to be treated successfully. It must not be supposed the assumption of a mere patronisingly tolerant attitude towards the nervous patient's longwindedness is here advocated; on the contrary, the obtaining of a detailed history must be supplemented by a thorough-going examination, on the physical side no less than on the mental. Such physical investigation is indispensable, for two reasons. In the first place, it impresses—never a negligible factor; and, secondly, it aids the practitioner to avoid the pitfall, already alluded to, of overlooking an organic element in a "functional" case. The neurotic patient loves to be examined; in view of his ready coöperation, why should the physician hesitate? It should be a routine procedure to "vet" the patient completely; each somatic system should be investigated. Many examples crowd into the mind of neurasthenic cases aggravated if not always caused by unsuspected sources of mischief in other systems than the nervous. In particular, the alimentary and urinary systems must be minutely scrutinised. Bacteriological examination is often a sine qua non. When the patient complains of being "out of sorts" and of vague nervous symptoms the search for a possible organic mischief-maker should be as thorough-going as the subjective complaint is slight. It is never wise to pooh-pooh a line of examination suggested by the patient himself. In the case, for example, of the neuropath who thinks there is something the matter with his heart and who has heard of newer methods of research the physician should be prepared to advise recourse to such technique. Similarly, the request for an X ray examination should never be refused. The mental satisfaction of knowing it proves "negative" is surely preferable to the doubt otherwise remaining, doubt which the patient's mental condition only serves to aggravate. The practitioner should play the part of the ferret; he should hunt over all the ground for any scent leading him to his quarry. He is clearly in better position to tackle his patient therapeutically when he has excluded early structural disease, or chronic infection, or glandular dysfunction.

The Value of Tangible Treatment.

The best results are obtained when *some kind of tangible treatment* is proposed and carried out. The doctor who "does something" has the pull over the other who says there is no disease, the symptoms are imaginary, and the condition will cure itself. A good deal of persistent slight nervous ill-health can be set right by physical exercises and baths. A bracing effect on the mind can be legitimately produced by purely physical methods. Sluggishness of somatic function may be responsible for "nerves," "the blues," headaches, depression, in many instances, and can be cured readily enough by appropriate means. One of my old teachers gave all his neurotic patients sulphur baths thrice weekly, knowing that the relish with which they looked forward to "bath day" during a Weir-Mitchell regime was worth much as a mental stimulant. The success of irregular practitioners or "cultists" of all sorts is largely due to their insistence on physical handling of the neuropath. If the end ever justifies the means it is in the realm of neurosis. Most doctors are naturally averse to anything even remotely suggesting humbug, and object to unscientific talk of vibrations, emanations, currents, and what not, but they need not be guilty either of charlatanism or of self-deception in adopting a sanguine attitude as to the efficacy of the mechano-therapeutic procedures they suggest for their cases. Massage and various forms of electrical treatment have always a place in the treatment of the neurotic and neurasthenic, and the most novel is not necessarily the best.

The Simpler Methods of Psychotherapy.

No less important must be attention to the patient's mind, and to his domestic and business situations. It has been well said that patients often need, not a physician, but a divorce, a child, a bank account, a job, a holiday, an aim in life, and the list can be extended materially by all who have to deal with the neurotic, whatever his social position. The error of prescribing a course of treatment which the sufferer is for domestic or financial or business reasons unable to carry out would never be committed were the whole circumstances of the patient discussed with the same care that may have been devoted to the medical aspect of his case. It should be axiomatic on the part of the physician to remember that the best treatment for the neurotic patient is not always the most strictly scientific. Occupational therapy, again, deserves mention in this respect. For many potentially neurotic people the multifarious activities developed by the war proved a perfect godsend, and the ennui of an aimless existence can be countered only by the obvious method of finding something for the patient to do. In the out-patient department not a few cases of neurosis have clearly been originated and intensified by the prevalent unemployment. Any persisting source of anxiety or worry engenders sleepless nights and starts a train of nervous symptoms which can only be dispelled by tackling the mischief at its origin. Hence the fundamental importance of ascertaining what is in the patient's mind. The attention which has been given in recent years to psycho-analysis has to some extent, at least, pushed into the background the simpler methods of psychotherapy at the disposal of every practitioner of medicine. The rational methods associated with the names of Dubois and of Dejerine will prove satisfactory enough in most ordinary cases. To take the patient understandingly over his case, interpreting his symptoms for him, pointing out in what respects he has exaggerated them or misunderstood their meaning, and imbuing him with a feeling of optimism and recoverability, will lead him far on the way to cure. It is a great thing for the constitutional neuropath to learn his own limitations and to order his life aright in view of these; nervous ill-health and nervous breakdowns can often thus be avoided.

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Recent articles in this series are :—

XXV. Puerperal Sepsis, by Lady Barrett. XXVI. Cyclic Vomiting, by Dr. G. F. Still. XXVII. Asthma, by Dr. E. P. Poulton. XXVIII. Traumatic Rupture of the Urethra, by Mr. G. Grey Turner. XXIX. Habitual Constipation, by Dr. Arthur F. Hurst. XXX. Hypertrophied Prostate, by Prof. Charles A. Pannett. XXXI. Infantile Eczema, by Dr. H. MacCormac. XXXII. Exophthalmic Goitre and Other Forms of Hyperthyroidism, by Prof. G. R. Murray. XXXIII. Syphilis in the Woman of Child-Bearing Age, by Dr. Margaret Rorke. XXXIV. Anæsthetic Sickness, by Dr. J. Blomfield. XXXV. Enuresis, by Dr. H. Thursfield. XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham. XXXIX. Flat-foot, by Mr. Blundell Bankart. XL. Medical Treatment of Early or Suspected Duodenal Ulcer, by Dr. J. A. Ryle. XLI. Retention of Urine, by Mr. J. Swift Joly.

Special Articles.

THE PANEL CONFERENCE:

CAPITATION FEE AND APPROVED SOCIETY CONTROL.

THE annual conference of representatives of local medical and panel committees met at the Central Hall, Westminster, at 10 A.M., on Thursday, Oct. 18th, Dr. H. G. DAIN, Birmingham, presiding. The chairman broke his rule of not giving an opening address to point out that the situation was unique, for on every previous occasion the opportunity of arbitration was open to the Conference after reaching its decisions, whereas this time arbitration had been ruled out in advance by the Minister of Health. The Conference was dealing not merely with the capitation fee of the moment, but with the position of practitioners under the insurance scheme for years ahead. His hearers were the stewards of the traditions of the medical profession, and he put it to them —Are you still to be masters in your own house? Will you accept dictation on the terms of service from some outside body with no interest in medicine and no breadth of outlook? It was, he said, essential to reaffirm the position of 1912, when insurance doctors established their right to negotiate only with the Government. At the conclusion of his remarks the chairman undertook, in view of the likelihood of further conferences in the near future, to withdraw his previous determination not to stand again. The Conference then decided to take at once the latter half of the agenda dealing with remuneration.

REMUNERATION AND APPROVED SOCIETY CONTROL.

Dr. H. B. BRACKENBURY, chairman of the Insurance Acts Committee (hereinafter called I.A.C.) then delivered the following address:

Under the new conditions under which we meet there is a necessity for the revision of some of the recommendations set down on the agenda by the Insurance Acts Committee, and I propose, with your permission, to withdraw the motion which states that the offer of the Minister of 8*s.* 6*d.* for three years is inadequate and that arbitration upon the lines of that of 1920 be asked for, and to combine two of the other motions. [*The Conference agreed to this modification.*]

I now proceed to move—

That the Minister's offer of 8*s.* for five years or of 8*s.* 6*d.* for three years be definitely rejected.

I should like to emphasise the necessity of our considering this very important matter with great calmness. We desire not to work up any particular excitement about it, although a great determination; and we want everybody at this Conference to say what he feels and to point out to us our weak places so that if action is necessary action may properly be taken. Let us know exactly where we stand, what is best to be done, and quite clearly what our actual determination is. This resolution will, I hope, concentrate your attention on the immediate issue. There are all sorts of contingencies which may arise hereafter. It is quite conceivable that we may have to call a special conference, perhaps in the first week of November. But whatever conditions arise after Nov. 1st must be tackled then. I want to make an appeal to those who are here to-day to voice their difficulties and their views so that when the decision is come to we shall be prepared on matters of detail and tactics to sink our own individual views and stand together, and go on the lines which seem good to those who have shouldered the responsibility in this matter. (Applause.)

Four Alternatives.

When we come to the problem which is before us—namely, what are the terms and conditions of service upon which it is proper for the profession to serve the community in this matter?—we find that there are four ways in which that question may be settled. They can be summed up in four words: Submission, negotiation, arbitration, and conflict. The Insurance Acts Committee would have preferred the method of negotiation. So far there has been no negotiation on this matter at all. The Committee was requested to prepare a statement of our case. We prepared and presented it in document M.1. The Minister to that prepared an answer which was to be a final answer. He was approached—quite properly as I think—by the approved societies, as by any other body of persons interested in the matter, and asked to hear what they had to say before he gave his decision. He met them and heard them. Then it was pointed out to him that it was only fair that he should meet us also, and he met and heard us. But at that conference he told us that he had been immensely impressed by the things which had been said to him at his conference with representatives of approved societies, though he declined to tell us what the things were which had impressed him. Certain whispers had come to us as to what had happened, and we found that the things which did come to our notice, if they were what was actually said, were things which it was perfectly easy to answer and absolutely necessary to contradict. But so far as the Minister was concerned, we had no information as to what had passed at that conference, and what points the approved societies had brought forward; therefore we had no opportunity to deal with those statements. Again, he told us that the Ministry's answer to our document had been prepared—I do not mean that it was not subject to alteration—and that in his view it was a magnificent answer, one of the finest documents he had seen, but he deliberately and finally declined to tell us anything that was in it! The Committee was therefore presented with a final judgment on the matter without being afforded opportunity of any conversations with a view to agreement if that judgment were not accepted. That is not what I conceive to be negotiation. (Applause.) We are in this position: Negotiation has not been tried, and, as I shall tell you later, there is only one method left for us to take in order that negotiations may be, not reopened, but may begin. The Committee was prepared to negotiate, and indicated this to the Minister; and anyone, I should have thought, with a spark of statesmanship would have sent for the representatives of the insurance practitioners, at all events in an unofficial capacity, and asked if by putting our heads together we could not arrive at some solution. No such message came. We simply had another answer. telling us that the Minister had said—what he had said! You have that reply before you, and you have before you also the answer which was immediately sent to that, stating our position at the moment. The Insurance Acts Committee will, I am sure, forgive me for having sent that answer, after consultation with Dr. Cox and Dr. Anderson, but without opportunity for consultation with the Committee as a whole. ("Hear, hear.") But that is the position: Negotiations have not taken place; we have asked for them, we have waited for them, and no invitation has come to us.

Negotations not having taken place, and the opportunity for such not having been offered, we turned to the next course at once. This was arbitration. We said, "If negotiations are not going to take place the next thing we are going to ask for is arbitration." We proposed to ask this Conference to authorise us to ask for arbitration. Arbitration is refused. We are told we cannot have it, and as far as the Insurance Acts Committee is concerned we do not propose to press for it, although an expression of opinion from this Conference that arbitration in the circumstances was a possible and suitable method of dealing with the matter might perhaps not be amiss.

Economic Grounds of Refusal of Insurance Acts Committee to Accept Offer of Ministry of Health.

Negotiations being out of the question at the moment and arbitration being refused, we are left with the almost unbelievably simple issue, though the extremely serious issue, of submission or conflict. (Applause.) And the Insurance Acts Committee asks you to endorse its opinion, which it makes to you in the form of the recommendation I am proposing, that we will not accept the offers which have been made. (Loud applause.)

On three grounds we cannot accept these offers. In the first place, the offers are economically unjust. I do not take these points in the order of their importance, but in the order in which it is convenient for us to consider them at the moment. I am not going to labour this economic point. We set out our full case in document M.1 to the Ministry, and from beginning to end of the Minister's answers there has been no real attempt to meet the facts and the figures and the arguments and the conclusions which we reached in M.1. All sorts of other things have been taken and said, but there has been no attempt to contradict or show errors in the facts or calculations which we have submitted to him on the economic issue. I will put it to you in one way which has not been over-emphasised. We will take the figure of 7*s.* 3*d.*, which was our capitation fee in pre-war—indeed up to mid-war—times. It has been generally agreed between us and the Ministry that 25 per cent. of the remuneration might well be regarded on the average as payment for practice expenses. That would take 1*s.* 10*d.* off the 7*s.* 3*d.*, and leave us with 5*s.* 5*d.* as our former net remuneration expressed in terms of the capitation fee. Our practice expenses to-day may definitely and properly be taken to be 50 per cent. in excess of what they were in 1913–14. If we take 1*s.* 10*d.* plus 50 per cent. and deduct this from the proposed capitation fee of 8*s.* 6*s.* we arrive at a capitation fee of 5*s.* 9*d.* Expressed, therefore, in net terms, we are offered to-day a capitation fee of 5*s.* 9*d.* as against a capitation fee of 5*s.* 5*d.* in the earlier days; an increase of 6 per cent., as against an increase of expenditure which has to be met out of this net remuneration of 57 per cent. according to Prof. Bowley, or of 75 per cent. according to the official figures which are issued month by month. Our contention that it was by no means certain that this index figure representing the cost of living was going to be a continuously falling figure is borne out by the fact that in each of the two months since we made that prophecy that index figure has gone up, and it is to-day 175 as against 169, at which it stood when we made the proposition. We are faced, therefore, with an offer which on purely economic grounds would raise our spending amount by 6 per cent. as against a reduced spending power of 57 per cent. or of 75 per cent. as the case may be; and that is in addition to and apart from the reduction in the standard of living which is imposed upon us all by the enormously increased taxation. We say, therefore, that on the economic side alone such an offer is unjust, and it is important for us individually that we should have such a remuneration as will make it possible for us to live in the way in which we ought to be able to live and to bring up our children so educated that they will be able to take a position in life not less than that which we have been able to take ourselves.

Necessity for Good Standing of Panel Practice in the Medical Profession.

But, after all, there may have been considerations which would bring home to some men's minds a doubt as to whether they should or should not accept the figure of 8*s.* 6*d.* What I say to you this morning is that the economic argument, while we do not minimise it in the least, must now have a subordinate place. There are other things which make us feel we have no option but to reject this offer. In the first place, we believe that the position which has been opened up before us in these proposals is nationally unsound and socially dangerous. Some of us believe whole-heartedly that a national health system, founded upon an insurance basis, is a good policy for the nation; but obviously if there is to be a national policy in that direction and on those lines it must be such a policy as will enable the whole medical profession heartily and willingly to coöperate in it, and not such a method as will give to the industrial population, whether in town or country, the services of doctors relatively inexperienced or driven to accept what they do accept by sheer economic need, and will make those who have been more successful endeavour to get out of the service at the earliest possible moment. It would be a disaster to allow a national system, paid for nationally and arranged nationally, to go on, which only left in the industrial areas of this country those doctors who are forced to go there, instead of leaving in those areas (as in other places) a considerable number of willing practitioners who will serve as well and as satisfactorily, and with as great a care for individual and social welfare, in those areas as in other communities more fortunately situated. (Applause.) To accept an offer of the present kind would result in that unfortunate state of affairs. (Applause.)

Who Represents the Real Interests of Insured Persons?

The third reason why we are unable to accept this offer, in the opinion of the Insurance Acts Committee, is because the circumstances in which the offer is made necessitate the protest of an honourable and independent profession. (Loud applause.) There was a conference of representatives of approved societies yesterday, and at that conference a very wise speech was made by Mr. J. H. Thomas, M.P.—a wise speech, I mean, considering the point of view from which he had to speak, and the audience to which he had to address his remarks. If we had to deal with people such as Mr. Thomas I have no doubt we should be able to arrive at a peaceful solution. But there is this fundamental point which is a fallacy in Mr. Thomas's speech—he said that the conference he was addressing was in a position to speak for every section and class of insured persons. Mr. Thomas appealed to the doctors not to disgrace the great heritage of their profession and engage in a conflict with 16 million people less fortunate than themselves. (Laughter.) Our conflict is not with those people, but on their behalf. Of course, it is the rôle of approved society officials to represent themselves to Ministers and to impress upon Ministers and upon the public that they represent the 16 million insured persons. But we know here that the attitude of the enormous mass of insured persons towards approved societies and their officials, where it is not one of indifference, is one of antagonism. (Applause.) The insured persons have been compelled to join the societies in order that they may reap the full benefits of the premiums they are compelled to pay, but in coming to us to help them we find that it is very common for them to regard their approved society as a remote entity and the society official as a person continually trying to do them out of their just rights. ("Hear, hear.") It is to us they come when they want help, and we can tell the Minister and the approved societies that so far as real knowledge of insured persons is concerned and real help given to insured persons in connexion with the problems of national insurance which they, very naturally, incompletely understand, it is to the doctor they come most of all, and, I rather suspect, next to the doctor, the clerk of the insurance committee. They do not get the help they might get from the officials of approved societies. But the societies, having adopted that rôle, now assume to themselves the position of being the community. They have in so many words, through their spokesman—there must be some of them who do not like it—claimed that the Minister has no "right" to alter the terms and conditions of service, that he has no "authority" to negotiate about a capitation fee without their permission, and that they and they alone are the persons who can properly say what are the conditions of service and the terms. There is no ambiguity about it. The statements of their claims which I have just made are quotations from speeches made by those who speak on behalf of the approved societies.

Then, Sir, we say that from the beginning the approved societies have taken the narrowest and lowest commercial view of the medical profession, and that they claim in effect to get into the position of being the employers, the masters, the paymasters of the profession. That is a position which we fought in 1911, and it is one of the things we won. Parliament by its deliberate judgment during the passing of the Act of 1911 took out from the Bill, as it then was, the power of the approved societies as such to interfere with the administration of medical benefit, and placed it in the hands of other bodies. It has been discovered that, in respect to that Act and Acts which have been passed since, the approved societies have in fact got into a position which was not exactly foreseen, and which on technical grounds they are using for all they are worth in order to achieve by this other method the position they lost in 1911 of being the controllers and dominating factors in this service. We are willing to negotiate with the properly constituted representatives of the community as to what the terms and conditions of service shall be, but we shall never submit to the views which the approved societies have taken of the national needs. We believe them to be narrow views, not to the advantage of insured persons, and not conforming to what ought to be a really effective national insurance service. We will never consent to take those narrow views, nor will we consent to be made subservient to any particular section of the community, though we are still willing to negotiate with the representatives of the community as a whole.

Difficulty of Negotiation with Approved Societies.

There are one or two other points in connexion with the approved societies which I should like to take. We have heard statements made as to what their position is with regard to the National Health Insurance Fund and with regard to the effect any increase of our remuneration above 7*s.* 3*d.* would have upon that fund. We have discovered that in spite of all our attempts to arrive at agreements with representative members of approved societies, whom we have met in their representative as well as in their individual capacity, it is futile to make any arrangement with them or to come to any agreement with them, because directly the opportunity occurs they go back upon the arrangement and do not adhere to the agreement. There is one gentleman who has been very busy speaking for the approved societies, Mr. Rockliff, and there is another who has lately stepped into the fray—I am sorry to say—Mr. Canter. Mr. Rockliff, in a letter to the *Times*, made the statement that if more than 7*s.* 3*d.* were taken out of the contribution for the doctors it could only be at the cost of depriving the insured population or of reducing the sum for benefit obtainable by them out of that contribution. Again he stated that if 8*s.* 6*d.* were given to the doctors the whole additional surplus expected to be shown would be appropriated to the advantage of panel doctors instead of going to increase the benefits to the insured. Mr. Rockliff stated, "It [the Minister's] is a most improper proposal." Mr. Canter repeated the protest he made against the approved societies paying more than 7*s.* 3*d.* for the kind of service given by insurance practitioners, and he added a further protest against the doctors being subsidised out of what the approved societies called the "hidden millions." I have in my hand a document in which this paragraph occurs:—

> "We agree that the service would be such as to justify a capitation fee to the doctors of substantially the present amount [that is, 9*s.* 6*d.*] without ruling out of the present consideration any claim by the medical profession for something beyond this and we have satisfied ourselves that the National Health Insur-

> ance Fund in the aggregate contains sufficient money to meet the cost without lowering or endangering the provision of the other benefits, whether normal or additional, to which insured persons are entitled."

That is signed by Mr. Rockliff—and Mr. Canter! Those statements have been made repeatedly, and they seem to me to be in absolute and direct contradiction to the statement which was made by the same men in their representative capacity in a document embodying the result of discussions we had had with them. There were those who told us at the time that we were wrong in having those discussions. I confess I am inclined to believe now that the people who told us so were right. ("Hear, hear.") At all events, the fact that we did have those discussions showed the extreme lengths to which we were prepared to go to arrive at an amicable conclusion. And this is the result.

It may be remembered that towards the end of last year the approved societies were engaged in a campaign to prevent their administration allowance, which had been 4*s.* 10*d.*, being reduced to a lower figure, and it has been interesting to look through the files of their journals and read their speeches, and to find how closely their arguments correspond with some that we are using to-day. In the first article in the *National Insurance Gazette* for Sept. 23rd, 1922, we read:

> "On this point—the point that the present administration allowance to approved societies should be continued for another twelve months—we must say at once that it will be idle for approved societies to then contend that the doctors' capitation fee should be reduced to something like the pre-war figure while approved societies should have their allowance maintained at a larger figure."

It is still being continued, and, idle or not, the contention is made that the doctors' fee should be reduced. Again, in a later number of the same publication:

> "I feel sure that the officials who have the working of the approved societies will resent any reduction from the present administration allowance, and that whatever might be gained in pounds, shillings, and pence would be lost by a more or less unwilling service. The proper administration of health insurance requires the spirit of public service and social work, and often this evaporates in the presence of a real grievance about pay."

Again, the approved societies are now contending that any extra money above 7*s.* 3*d.* which is received for the doctors' capitation fee is so much withdrawn from the additional benefits and other benefits which insured persons will be able to enjoy. The point was, of course, made in some quarters that if they maintained the administration allowance at a higher figure than was necessary there would be less money in the fund to supply insured persons with additional and other benefits, and the statement made by the most authoritative person in the approved society world at the National Conference of Industrial Assurance Approved Societies last December was this:

> "I go further and say that it is wrong for the societies to be bolstered up as regards the work of administration by and out of private moneys when at the same time increased benefits are being given. There is a good maxim which says, 'You should be just before you are generous.'"

That shows the position of mind of exactly the same people who are talking in that way about our attitude to-day when they are faced with the possible reduction of their own salaries and a certain moderate reduction of administration allowance. It did not seem to them iniquitous that they should be paid a proper fee, despite the question of additional benefits which might otherwise be given to the insured person. To-day the only argument which they are using, and which is going home to the public at all, is that we are trying to steal from insured persons moneys going to their benefit, and appropriating those moneys into our own pockets. That is completely answered by the statement which they themselves made when the argument was used against them less than nine months ago. (Applause.)

I will pass from this, and point out that all this year we as your representatives—the representatives of insurance practitioners—have been trying to the utmost to cultivate friendly relationships with the officials of approved societies and others who have a legitimate and proper interest in the smooth working of the insurance system. We have met every criticism which they have offered, and have made constructive proposals for improving the service. They have acknowledged to us over the table repeatedly that all the things which they have considered important have been given by us and met by us in a perfectly proper way in the new terms of service we have arranged. But there has not been one word of public acknowledgment of that by the representatives of the societies since this controversy began. Indeed, all the implications have been that the service in their opinion has been a bad one, that no improvements are going to be made. They have not had the honesty to say that these improvements have been agreed to, offered and suggested in many cases by ourselves. In that atmosphere what can you do more to cultivate friendly relationships or an amicable agreement? ("Hear, hear.")

The Way to Obtain Negotiation.

The position is extremely simple. The Minister has been impressed by what the approved societies have told him: on the one hand that they have immense political pull and power, on the other hand that the doctors—I am quoting—"have not an ounce of fight in the lot of them" ("Oh!"), and that he can safely ignore the medical profession in any negotiations which take place between him and the societies and in any decisions he may come to. As to the proposals now made, however economically unjust, however socially disastrous, however detrimental to the honour of the profession, we must either submit and accept them immediately, or we must take up the only remaining solution of conflict. (Loud applause.) There is no alternative. Arbitration is ruled out, negotiation without conflict is ruled out. We have made a last attempt to see whether it is possible to negotiate with the Minister in his responsible capacity, and we have been told in a way which leaves no doubt whatever that a condition precedent to any resumption of negotiations is that we must show the Minister that he cannot get, on his present terms and in present circumstances, the satisfactory service which he desires. Therefore, in the opinion of the Insurance Acts Committee—the unanimous opinion—we are bound to enter upon this fight. To submit now would be to submit to what is for us economically unjust, for the nation bad, and for the profession fatal. (Applause.) But it is for you to decide to-day whether that is the better of the two alternatives. To accept leaves us in the position I have indicated; to fight and to fail would leave us in that position also; there is only one thing to do, in the opinion of the Insurance Acts Committee, and that is to fight and to succeed. (Cheering.)

Let me tell you what I mean by success in this fight. The fight will be won in all essentials when we have got the requisite number of resignations. The mere fact that we have succeeded in doing what we set out to do will have won this fight in all its essential respects. If we do not do it, our position as a fighting force is, of course, gone for evermore. Not only that, but if we do not do it, our position as a negotiating power is reduced to its lowest level for evermore. We leave the approved societies in the field with their claims (however unsubstantial) acknowledged, impressed not only upon their own minds but upon the minds of the governing authorities and the public of this country. The only salvation for us is to fight and to succeed. If we get the requisite number of resignations we shall be able to go to the Ministry and show that they have been secured. We can say to the Minister, "Are you prepared now, now that we have shown the approved societies that they are wrong in their estimate of us, and that you have been wrong in your doubt of us—are you prepared now to open negotiations around a table in order that we may arrive as sensible men at some peaceful solution?" I am absolutely confident that the Minister's reply to that request will be, "Yes, in this position I am prepared to negotiate." Then we shall go in to negotiate. Those negotiations must result in an offer somewhat better than the present one, and the result will show that we have been standing up for the insured persons' interests, the national needs, and the honour of the profession. We shall be able to go to the Minister and negotiate and come back to you with the result of those negotiations, in the form of a proposal which you may be able to accept or may not be able to accept, which we may be in a position to recommend you to accept or may not be in a position to recommend you to accept; but at all events our fight will be won, and the Minister and the public will realise that we care much less about sixpence here or sixpence there than we do about ensuring a good national service and maintaining a free and honourable profession. (Loud and prolonged cheers.)

Debate on Dr. Brackenbury's Statement.

Dr. Brackenbury's address was warmly applauded and at its conclusion it was decided to send a substantial précis to the press and a copy to every panel practitioner in the quickest possible way. The motion:—

> That this Conference definitely rejects the offer of the Minister of Health of 8*s.* for five years or of 8*s.* 6*d.* for three years—

was then carried unanimously, and a rider regretting that the Minister had not seen his way to accept arbitration was accepted with few dissentients. A further resolution was then passed leaving all details of negotiations regarding capitation fee in the hands of the I.A.C., and pledging the Conference loyally to follow the instructions issued by that Committee, which is the executive body.

The Position of Rural Practitioners.

Dr. Brackenbury then moved that any agreement with the Ministry or the Scottish Board on the question of the capitation fee be subject to agreement being arrived at with regard to the special circumstances of rural practitioners. He pointed out that in the lowlands of Scotland a relatively small sum of money was set aside for certain exigencies of rural practice, such as to enable a practitioner to obtain a locum during study absence, and that the position of rural practitioners might be met by readjustment of the mileage grant within the two-mile area, and further consideration for the time element in rural practice. In England the Minister's sympathy had not yet eventuated in action. This motion was carried unanimously.

The National Insurance Defence Trust.

The present position of trust funds was stated, Dr. Brackenbury expressing his conviction that they would suffice for a short fight, while the subscribers could and would no doubt produce more money if and when required. He assumed that hard cases would be dealt with as they arose, and that not all legitimate claims would in fact be presented.

TERMS OF SERVICE, 1924 AGREEMENT.

On behalf of London it was moved, that in the case of an insured person desiring to transfer from the list of one practitioner to that of another practitioner, he should be required to sign the medical card in the appropriate space (or where unable to write, to make his mark in the presence of a witness) and that insurance committees should not accept any cards not so completed. This would safeguard, if not entirely prevent, trouble in regard to touting. The motion was carried.

A motion by Walsall that a doctor should not be able to accept a panel patient who was being attended by another doctor during an illness was lost. It was felt that the situation was one not likely often to arise.

Medical Service Subcommittees.

Newcastle-upon-Tyne moved that no body on which laymen sit should have power to hold inquiries as to the correctness of any treatment given or advised. It was, however, pointed out that the usual practice of Medical Service Subcommittees throughout the country is to defer to the medical members of the committee in purely professional matters, and the motion, though passed, was referred to the I.A.C., as also a motion by Bury to obtain the power to request witnesses to sign a declaration of the truth of their evidence. A motion by Buckinghamshire asked the I.A.C. to take all possible steps to arrange for deputies being appointed for members of these Subcommittees. While it was often difficult for busy practitioners to attend regularly, the approved society officials were always present. It was doubtful whether deputising at present was strictly legal. A representative created mirth by stating that, in his area, if only one medical member was present, he faded away, so that the subcommittee could not hold inquiry.

Certification.

It was agreed to press for a verbal change in the new form of voluntary certificate, which should read "Insurance practitioners, not being under obligation to issue certificates, are *entitled* to charge fees in respect of the issue thereof," instead of "are *not debarred* from charging fees," as suggested by the Ministry. The Conference unanimously supported the I.A.C. in their refusal to accept the obligation of stamping certificates with the name and address of practitioners.

Charging of Fees.

A motion was tabled by Bury to the effect—

> That this Conference is of opinion that while an insurance practitioner ought not to charge an insured person on his list a fee for any service to which the insured person is entitled, yet he should be free to charge an insured person, who is on the list of another practitioner, for all services rendered, except in the case of emergency.

Dr. Brackenbury pointed out that this was one of two important matters in which agreement had not been reached with the Government. Approved societies took the view that "under no circumstances whatever" should an insurance practitioner charge a fee. The I.A.C. had reached the conclusion that the matter could not be dealt with simply by legal enactment. Two classes of legitimate claim presented themselves: (1) that of the patient who, without desire to change his panel doctor, wished to have the opinion of another practitioner on the panel; and (2) that of the person unwillingly insured under the Act, who refused altogether to take advantage of its provisions. This and other resolutions of cognate purport were referred to the I.A.C.

ORGANISATION.

After discussion of a motion by Kent, that all energies should be immediately devoted to a comprehensive Parliamentary campaign, supported by every possible action through the press, a careful statement of the case against the approved societies was made by Dr. **Gordon Ward**, in which the following were set out as Points for Discussion with Members of Parliament, Employers, Insured Persons, and Taxpayers.

1. The funds raised by the authority of the National Health Insurance Acts are generally held to have been primarily intended to meet the cost of a weekly payment during sickness (sickness benefit) and of the provision of medical attendance (medical benefit). Maternity and sanatorium benefit were also included from the first. It would appear that all these benefits ought to form a first charge on the funds. The approved societies dissent from this attitude and pretend that they are entitled not only to claim as their own any surplus which may accrue but also to decide how much shall be set aside to meet the primary charges named. They commonly assert that the sums required for the adequate remuneration of doctors can only be secured by depriving insured persons of other benefits—e.g., hospital, dental, and optical—to which they are entitled. It is impossible for practitioners to accept the position of residuary legatees who can only benefit when all other claims have been met.

2. The rates of contribution at present exacted from employers and insured persons are in excess of those needed to satisfy the primary requirements of the Acts as set out above, and very large surpluses have been accumulated. In the statement of balances issued in 1923 but for the year ending Dec. 31st, 1921, the total balances shown are £124,075,481. Of these £56,704,084 appear to be paper credits only and should probably be subtracted from the total, leaving balances at that date of £67,371,397. The accounts are not in all respects easy to interpret, but it cannot be doubted that further credits have accrued since 1921 and that the whole represents a very severe tax on industry at a time when any such tax ought if possible to be avoided.

3. The societies claim that all surplus funds are to be regarded as the property of various individual societies and that they are entitled to administer them in a way which, in fact, provides substantial additional benefits for some, while others (who are compelled to pay the same contributions) obtain only the statutory minimum of benefit. Although their claim can be supported by a sufficiently ingenious reading of the Acts, it remains certain that the present developments were not contemplated when the original Act was passed and that a system providing unequal benefits but compelling equal contributions is absolutely indefensible.

4. The ninth report on the work of the National Insurance Audit Department issued in 1923 and covering the audit for the year 1922 shows that in the period under review 9917 certified accounts of approved societies and branches were issued. The payments involved amounted to £14,560,682. Of these 9917 accounts no less than 4766 were certified subject to reservation or, in other words, showed irregularities. The number of cases in which fraud seems to have been in question was only 54 and the total sum involved (so far as ascertainable) only £4068, but it is evident from these figures that very large sums of money raised by compulsory contribution from the taxpayer, the employer, and the insured person are being dealt with in a way that would not for one moment be tolerated in any commercial undertaking.

5. The organic connexion between the State-provided or "approved" societies and their parent industrial and profit-making concerns (which connexion consists in the use of the same offices and officials and agents for both sections) is so

close that it seems doubtful whether the advantage of State aid can possibly be confined to the State sections. It will be noted that in the report of the Audit Department above referred to there is a "Statement of amount of payments (excluding investments) audited in the year 1922," and this shows a total of benefit payments amounting to £11,103,828. The total payments for administration were £3,456,854, so that in round figures every £100 of benefit cost £30 to distribute. It would appear probable that a less expensive system of distribution could be devised by stricter methods of control.

6. The so-called "representation" of insured persons by the approved societies does not, in fact, entitle them to speak on their behalf, inasmuch as insured persons have no sort of effective voice in the affairs of the societies to which they are forced to belong as a condition of obtaining benefit. Although a complaint against a doctor is very properly subjected to full investigation, it remains anomalous that the very much more frequent complaints against approved societies remain uninvestigated and the complainants unsatisfied—a fact to which every panel doctor can testify, since the insured person usually brings his complaint to the doctor and asks his advice as to how delayed or refused benefits can be obtained.

7. The existence of a class of "post office" or "deposit" contributors who are deprived of the benefits of insurance is impossible to defend. These persons are only to draw out as benefit the precise sum which each individual has paid in. Many deposit contributors remain so from choice since they are persons who have no desire to be insured and do not intend to avail themselves of benefits but are nevertheless technically liable to pay contributions. But this class also contains those who are too ignorant to face the formalities necessary to join a society or who have been refused admission to societies owing to their being in indifferent health and so likely to prove a charge upon the funds. These latter are often persons of deplorable social position and almost entirely devoid of education, and are thus particularly in need of that assistance from the State which the Acts were meant to provide but which is nevertheless withheld from them. Their position could be remedied by the formation of a State society, but if any such society were formed it would probably attract the majority of the insured population and thus damage the position of existing societies. It may be that this is the real reason which has led to the continued existence of the deposit contributor class.

8. Purely destructive criticism is of little avail unless it is also possible to point out the required remedies. It seems evident that the State ought to resume direct control of the expenditure of all surpluses accruing under the Acts. It would probably be necessary to retain the personnel of the societies as distributors of benefit, but they should be subject to at least the same degree of supervision and control as is found to be desirable in, for example, a sub-postmaster or any other part-time employee of the State. The whole of the anomalies pointed out above are directly traceable to this lack of control and would be eliminated almost automatically by the re-assertion in connexion of the National Health Insurance Acts of the old principle that there should be no taxation without representation. It is apparent at the moment that, for example, the employer who finds much of the money has even less share than the insured person in determining how it shall be spent.

Following Dr. Ward's statement, it was decided with but three dissentients to appoint a committee forthwith to conduct a publicity and Parliamentary campaign and report to the I.A.C. Membership of this committee, suggested from the chair, was as follows: Dr. H. B. Brackenbury, Dr. J. W. Bone (Luton), Dr. F. G. Layton (Walsall), Dr. C. F. T. Scott (Middlesex), Dr. G. C. Garratt (Chichester), Dr. E. A. Gregg (London), and Dr. Gordon Ward (Kent). A motion by Liverpool to the following effect was referred to this Committee to consider:

> That this Conference strongly urges every practitioner to make individual protests to the Minister of Health, the local Member of Parliament, and to any political association to which he may belong, and instructs all Panel Committees to organise protests in their separate areas.

The Conference rose at 6.30 P.M.

ELSIE INGLIS MEMORIAL.—The corner stone of the Elsie Inglis Memorial, The New Hospice, Spring Gardens, Abbeyhill, Edinburgh, was laid on Oct. 18th by Viscountess Novar. The hospice occupies a site overlooking King's Park, with outlook to Arthur Seat and Salisbury Crags. There is accommodation for 40 beds, and the hospice, when completed, will form a valuable addition to the maternity and child welfare institutions in the city, and will be a fitting memorial to a brave woman.

THE PANEL CRISIS:

THE SITUATION IN THE MANCHESTER DISTRICT.

(FROM A SPECIAL COMMISSIONER.)

ON the principle that what Lancashire thinks to-day the country will think to-morrow, I visited Manchester and Salford during the week-end, with a view to finding out the attitude of panel practitioners and others in face of the failure of the insurance medical service to obtain satisfactory terms and conditions of service for 1924. Manchester has a panel of some 250 practitioners, with another 105 or so in Salford, and although the executive officers of the panel themselves are for the most part busy practitioners, they were ready to talk over a momentous position. I found them unanimous practically and firm. The firmness was quite unmistakable. Whatever the outcome, the doctors in the area have decided to grasp the opportunity of freeing themselves from friendly society control. Not that there has been any difficulty locally for years past in working the Insurance Acts harmoniously. No doubt everything is made easier by the system of payment on the principle of visits paid, the doctors' quarterly accounts being cut down in Manchester to a basis of average visits, and in Salford to an artificial limit conveniently described as "the bogey figure." The system has admitted not only of free choice of doctor, but of free change of doctor as often as desired, with the complementary right of the practitioner to get rid of an undesired patient. All the parties to the local working of this scheme meet on the Insurance Committee, and have found no difficulty in composing their divergencies by round-table conference and mutual give-and-take. Complaints referred each year to the Medical Service Sub-committee scarcely run into two figures. The chairman of the Insurance Committee made it quite clear last week, and carried his National Association with him, that it is not for insurance committees to take sides in the quarrel, their duty being to fight for an adequate service. The fear of the doctors is quite definitely that the friendly society officials have reasserted, or have endeavoured to reassert, their right of controlling the conditions and remuneration of medical service at the centre; the fear, in fact, that the control by friendly societies of medical benefit, which was definitely taken out of their hands by the Acts of 1911 and 1913, was again to become operative. This is a sequel to the arrangement made by Sir Alfred Mond in sanctioning the payment out of accumulated contributions of part of the capitation fee when the Exchequer grant was withdrawn by the Geddes axe. Sufficient resignations had already been tendered by the end of last week to make it evident that the required quota would be reached, and Manchester is settling down with quiet and grim confidence, not altogether unmixed with satisfaction, to a fight in which the memories of 1912 are still present. I spoke with the first practitioner to go on the Manchester panel in 1912; he was quite prepared if need be to come off in 1924.

The plan of campaign on Jan. 1st, 1924, is quite simple. Manchester and Salford could easily have organised a scheme for the collective treatment of insured persons by the local profession, on the analogy of schemes in full working order at Leicester and Southampton; but to do this would be to impose great difficulty on surrounding areas where organisation is less perfect, and the decision has been taken to revert on Jan. 1st to the conditions of private practice. No patient will be accepted for a lesser fee than 3*s.* 6*d.* in Manchester, but no practitioner will refuse to treat a case of urgent illness without fee, wherever the necessity should arise. Hardship would, it is felt, not be so manifest in Manchester, where, in spite of a lamentable proportion of unemployment, the working class on the whole is not badly off. Any tendency to refer patients wholesale to the part-time Poor-law medical officers would not prove acceptable to these practitioners, who are also without exception on the panel. The hardship would fall rather on individual doctors, especially the comparatively few who are dependent solely for their existence upon a large panel. Although no doubt the individual fee per patient would be higher—for in the Manchester scheme practitioners are actually paid only some three-fourths of the sums to which they are entitled on the basis of the model fees—yet attendances would certainly drop off in greater or less degree, young people of both sexes generally would be loath to come if a fee was to be charged, minor ailments would remain unattended, and in fact all the early preventive work which has been growing up unobtrusively under the Acts would drop out.

How long would such a struggle last? Manchester is not optimistic in regard to the Minister yielding forthwith, even when evidence of the determination of the medical profession is submitted. But insured persons will, no doubt, bring pressure upon their friendly societies to come into line, even before the seriousness of the position is brought home to them in the New Year, for the doctors' case already has widespread sympathy among insured patients, "Surely, Doctor, you are not going to take less than you do now," being frequently heard. The difficulty is realised in stating an issue which cannot readily be explained in popular terms. No doubt 8*s.* 6*d.* is regarded in the Manchester area as an insufficient sum for services rendered. So much is this the case that, as was to be feared, a number of the practitioners with smaller panels—men whose presence on the lists is particularly valuable in proof of the all-round quality of service—have decided in any case not to renew their agreement with the Insurance Committee; but it is not easy, in an area where feeling is friendly all round, to evaluate the fear of central interference from the approved society representatives, which Manchester is as sensible to as practitioners in less organised districts.

Can the resistance be effective? There is, I gather, a large local relief fund quite apart from the National Insurance Trust Fund, from which the hard cases would be relieved, and on the financial side it is felt that the Minister of Health is unaware of the strength of the position. Experience has shown that it is not difficult to keep up a loyal standard of a minimum fee per visit or surgery attendance, although more difficult to do so in the case of any contract arrangement.

A curious difficulty arises in enlisting the sympathy of the women for the insurance principle, for, even in an area where the serious aspect and determination of the Mancunian at once strike the southerner, women are found not readily comprehending that principle. When in health they are apt to resent the payment of instalments which do not seem to them to result in any material return. At any rate, the domestic servants in Manchester—for there still appear to be some—are hostile to medical benefit under the Act, and this spirit has been in evidence often and elsewhere. But these comprise the only section of the community, it would seem, who desire to "scrap the Acts." In Manchester the medical men and the public alike accept the insurance principle, the medical men only wanting to have proper conditions of service.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Cameron Prize Lecture: The Story of Insulin.

Prof. McLeod, of Toronto, delivered the first of two lectures on Oct. 16th in the University New Buildings, Edinburgh. He said that he proposed to give a review of the investigations which had led to the introduction of insulin as a recognised therapeutic agent. The problem with which they were concerned was the nature of the fundamental factors which control carbohydrate metabolism. Prof. McLeod briefly outlined the well-known facts of the breaking up of carbohydrates into carbon dioxide and water, and how this was influenced and controlled by an internal secretion of the pancreas, to which Sir Edward Schafer gave the name insulin. He told how he and his co-workers had eventually managed to obtain this substance free from proteolytic enzymes by the process of acid-alcohol extraction of fractional precipitation The next step was to study the effects of insulin on experimental animals. In depancreatised dogs insulin replaced something which was absent and controlled over-production of sugar, so preserving the balance in the blood. In normal animals it was a toxic agent having, as it were, the effect of an overdose. The advantage of using depancreatised dogs rather than experimenting on diabetics was that the latter are not completely depancreatised and consequently an unknown factor is involved. Best and Banting in thei first experiment obtained a definite fall in blood-suga and this was accompanied by a lower output of suga in the urine, so that the sugar was used by the animal They next set to work to find out by comparing intake with output how much glucose a unit of insulin could cause to be metabolised. Thus, if a dog on an intake of 145 g. of sugar used 105 g. with 20 units of insulin and 135 g. with 30 units, the additional insulin has presumably accounted for the extra 30 g. of sugar used and the glucose equivalent, as it is called, would be 3 It was important from the clinical standpoint to determine this glucose equivalent. It was not constan in any one case, and was found to be considerably lower in diabetics than in the experimental animals It became progressively smaller as the dose of insulin increased according to a definite curve, so that insulin in this respect behaved as an enzyme. This observation suggested that clinically a slow absorption of small amounts as from inunction or the alimentary tract was more desirable in obtaining the maximum effect than the present hypodermic method. The glucose derived from carbohydrates was apparently more easily metabolised than that from other sources, which possibly accounted for the lower glucose equivalent in diabetics who derived their supply to a considerable extent from protein. Insulin also acted on the other end of the chain, bringing about the deposition of glycogen in the liver and muscles. It acted, too, on both ends of the fat metabolism chain, reducing the lipæmia and fat excess in the liver at the one end and at the other bringing about the complete oxidation of butyric acid. The lecturer pointed out that this latter action was indirect and quoted the well-known illustration of the fats being burnt up in the carbohydrate fire. The ketone bodies in diabetes might be regarded as the poisonous smoke of incomplete combustion. The influence of the pancreas on fat metabolism was a problem of great interest and importance.

In the second lecture Prof. McLeod began by discussing the effect of insulin on experimental forms of hyperglycæmia. These he classified in three groups: (1) nervous, (2) asphyxial, (3) pharmacological. Claude Bernard's classical experiment of puncturing the floor of the fourth ventricle furnished an excellent example of the group (1). There was also in this group sympathetic stimulation, either direct electrical or indirect by adrenalin. Ether and phloridzin respectively were examples of the group (2) and (3). Insulin controlled all these forms of hyperglycæmia. That this was not a simple reaction in the blood was indicated by the fact that much mor glycogen was recovered from the liver of an anima to which insulin had been given along with epinephri than from that of one which had had epinephri alone. An interesting and at present inexplicabl fact was that only 60 per cent. of injected glucos was recovered in the body 15 minutes later. It woul seem that insulin brought about the formation of a intermediary substance between glucose and th end-products, carbon dioxide and water, which wit our present analytical methods we are unable to detec Prof. McLeod went on to deal with the effect of insulin on normal animals. In well-fed animals, i which there was a plentiful store of glycogen, th blood-sugar curve returned in about three hours to its normal level, whereas in starved animals, which lacked this store, the return was very much slower. This had a practical bearing in indicating a possible danger in the insulin treatment of severe diabetics. The two curves corresponded in the first half-hour, which might seem to indicate that the process takes place in the blood. But in vitro the glycolysis curve was unaffected by insulin. The effect would seem, therefore, to be produced in the tissues, and this was supported by the fact that insulin greatly increased the rate of glycolysis of the perfused mammalian heart. It was as if a vacuum were created in the cell and filled up again from the blood. This "vacuum" was in all probability the result of increased carbohydrate metabolism, though the experimental evidence of this was not absolutely unimpeachable. Non-insulin normal rabbits showed higher storage of glycogen than insulin ones. The increased carbohydrate metabolism resulting from insulin led to a sparing of protein metabolism. The lecturer went on to speak of the source of insulin. He reviewed the known facts concerning the islets of Langerhans. In the lower animals, such as the skate, the islet tissue is definitely arranged along the ducts and appears to be an outgrowth of the epithelium of the ducts, whilst in some fishes the islet and zymogenous tissues are quite separate. In these the islet tissue was present as a number of small glands, one of which, larger than the rest, was known as the principal islet. As much as 25 units of insulin had been obtained from one of these islets. The cod and the halibut were providentially provided with large principal islets, and, as these could be quite easily collected by fishermen when cleaning the fish, there would seem to be every hope of a substantial reduction in the cost of production of insulin.

University of Edinburgh: Retirement of Professor Alexis Thomson.

It is a matter of great regret that Prof. Alexis Thomson, C.M.G., has been compelled through ill-health to retire from the Chair of Systematic Surgery, to which he was appointed in 1909. In appreciation of the place he held in the estimation of the undergraduate a former pupil writes in *The Student*, the official students' magazine of the University:—

> "Some of us will long remember the strange feeling of despondency we felt on hearing that Prof. Thomson might retire from the Chair of Surgery. He has filled, and will continue to do so, a very conspicuous place in the tradition of the Edinburgh school, and in the conversation and memories of undergraduates. Never has any lecturer occupied a more affectionate and familiar place in the memories of his students. . . . Although severed to his intense regret, from the detail of teaching surgery, his name will long remain as an impulse to progress. One of the greatest benefits students have derived from Prof. Thomson's lectures, and one which he was never tired of emphasising, was his conception of the evolutionary nature of surgery. His teaching was valuable, not for the number of facts that he enunciated, but for the angle from which he regarded surgery, not as an abstract collection of immutable rules, but the practical art of relieving disease based on physiological principles."

Royal Medical Society of Edinburgh.

The inaugural address of the 187th session of the Society was delivered in the Society's Hall, Melbourne-place, on the evening of Oct. 19th by Sir William Leishman, K.C.M.G., Director-General of Medical Services.

Royal College of Physicians of Edinburgh.

At a dinner given by Prof. George M. Robertson n connexion with the Morison lectures, Prof. Robertson poke on the Centenary of the Delivery of Special Courses of Lectures on Mental Disease.

WEST RIDING ASSOCIATION OF GRADUATES OF THE UNIVERSITY OF EDINBURGH.—The annual dinner will be held in the Great Northern Hotel, Leeds, on Nov. 9th, t 7 P.M. It will be preceded by the annual general meeting at 6.30 P.M. Further information may be obtained rom the hon. secretary, 103, Manningham-lane, Bradford.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics for three cities during 1922. It will be noted that Sheffield compares favourably with the other two for the death-rate from respiratory diseases and influenza, probably for the reason given by Dr. Wynne, that influenza was prevalent in the last quarter of 1921 in Sheffield and not in the first quarter of 1922.

City.	Estimated population (R.G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Sheffield	522,600	20·7	11·7	1·2	1·2	2·3	80	119	3·6
York	84,980	20·0	12·3	1·2	1·2	2·5	69	269	6·4
Lincoln	66,930	18·4	12·1	0·9	1·2	3·6	(80)*		4·0

* The figure in brackets gives the undivided infant mortality rate.

Sheffield.

Dr. Fred. E. Wynne reports that the general death-rate and the infant mortality-rate were the lowest ever recorded. The Sheffield death-rate was for the first time lower than that for England and Wales. This is partly due to the fact that the influenza and pneumonia epidemic occurred in Sheffield during the last quarter of 1921, whereas in most parts of the country it occurred in the first quarter of 1922. Eleven cases of small-pox were notified during the year, all of the mild type characteristic of recent outbreaks in the Midlands. All the patients made a good recovery. The war increase in tuberculosis deaths amongst both males and females has disappeared. The lowest death-rate from tuberculosis was in 1920, and the two subsequent years show a slight increase. Thus the deaths in 1920 were 590, in 1921 619, and in 1922 636. Dr. Wynne combats the suggestion that the reduction in infant mortality merely postpones the deaths of infants to a slightly later period of life by showing that the mortality at ages 1–5 has declined pari passu with the mortality during the first year of life. He further shows that, owing to the decreased numbers of deaths of infants from diarrhœal and respiratory diseases, the number of deaths of weakly or degenerate infants with a bad heredity, included in the congenital causes group of prematurity, debility, &c., now form a greater proportion of the total infant deaths. This indicates that the infants who are being saved are not the weekly and degenerate ones.

The number of houses erected during the year was 979, of which 801 formed part of a municipal scheme. Overcrowding is still deplorable and the city treasurer has 4000 families on the waiting list for municipal houses. Owing to the shortage, there has been much sub-letting by tenants of the corporation and endeavours are being made to check this and to prevent undesirable conditions arising on the corporation housing estates. Much attention has been given during the year to the repaving of back-yards, and Dr. Wynne emphasises the fact that "when an unpaved and dirty back-yard is put in good condition the effect is to improve the sanitary condition and cleanliness of the whole interior of the houses using such yard." As the cost falls entirely on the owner, the progress of this work is difficult in many cases at the present time. A scheme is under consideration by which, when necessary, the corporation would do the work and recover the cost from the owner in instalments. Dr. Wynne believes that such an arrangement would constitute, without cost to the rates, an important sanitary reform.

Investigation of the causes of stillbirths does not indicate that syphilis has been a frequent factor. Of 142 cases investigated, 23 were first pregnancies and in 62 cases the mother had previously only had living children. It is suggested that the present unemployment, with its resulting constant worry and malnutrition, has been a factor and that "in many cases there is no apparent cause, which is very suspicious and unsatisfactory." The number of persons dealt with for the first time at the V.D. clinics has declined from 2418 in 1920 to 1399 in 1922. The number of attendances per patient shows a satisfactory increase. The cost of the scheme per person dealt with for the first time was £3 18*s.* 3*d.* in 1920 and £4 16*s.* 1*d.* in 1922. Dr. Wynne sees "no reason why persons who can afford to do so should not pay the whole or some part of the cost of their treatment."

There are 2350 stalls for dairy cows in the city of Sheffield, and in these stalls 23 cows were found during 1922 with tuberculous udders. It has to be borne in mind that the Sheffield cowkeepers know that their cows will be subjected to regular veterinary examination and consequently have a special reason for trying to buy cows free from sign or symptom of tuberculosis. The 1922 experience of one tuberculous udder per 100 stalls is more or less similar to the experience of former years. One may be justified in drawing the inference that the rate of one tuberculous udder per annum per 100 stalls occupied by milk cows would be considerably exceeded in districts where there is no systematic veterinary inspection. An interesting feature of the Sheffield scheme is the use made by the veterinary staff of the microscopical examination for tubercle bacilli. Thus, in 1922, 44 country cows and 18 city cows were found to be suffering from tuberculosis of the udder by microscopical examination of the sample from the suspicious udder. These cows were dealt with at once and the milk-supply freed from infection, without the delay of some weeks necessitated by the biological examination. The number of samples taken from suspected udders during the year was 132. Of these 61 were found to contain tubercle bacilli by immediate microscopical examination and 71 gave a negative result. The 71 "negative" examples were sent for biological examination and nine were returned as positive, 62 as negative. The immediate microscopical test therefore proved of great value.

York.

Dr. Edmund M. Smith tells us that the important events of the year were the opening of the new maternity hospital and the appointment for the first time of an assistant medical officer of health. Acomb Hall has been successfully adapted as a maternity hospital by the city engineer, Mr. F. W. Spurr. The accommodation comprises four large wards with 27 beds, four small wards with nine or ten beds, two one-bed isolation wards with separate conveniences, a labour-room on each of the two floors, a receiving room with bath, and suitable accommodation for administrative purposes. A farmhouse on the site provides accommodation for the night nurses and others. The hospital has a very pleasing general appearance and situation, surrounded as it is by ample gardens with fine shrubs and trees. The first resident medical officer is Dr. Kathleen Cass, the newly appointed assistant medical officer of health, and Dr. Louise Fraser has been appointed visiting surgeon on an agreed scale of fees. The Central Midwives' Board have approved of eight pupil-midwives being taken at a time. Maternity and child welfare work in York is carried out by the medical officer of health and his two health visitors, the Infants' Welfare Association, the dispensary, the maternity hospital, the county hospital, the school clinic, and other bodies all working together—an excellent blend of municipal and voluntary effort. Coördination is maintained by the York Child Welfare Council (founded in 1914), which comprises representatives of the various bodies interested and of which Mrs. Edwin Gray is honorary secretary. During the year ended March 31st, 1923, midwives attended about 91 per cent. of the total births in the city and sent for medical help in about 4·4 per cent of their cases. The former figure is surprisingly high and the latter as surprisingly low. Voluntary work is also a feature of the York tuberculosis scheme. The care and after-care committee known as "the Tuberculosis Crusade Committee" raises funds for the provision of financial help, extra food, clothing, beds, bedding, nursing, &c., for those in need of assistance; also for loan of shelters and bath-chairs, payment of expenses at convalescent homes, and assistance towards training for or obtaining more suitable employment. There are 1480 midden-privies in York and over 2700 waste-water closets, but the provision of the latter is now discouraged. During the last 22 years 5556 midden-privies have been replaced by water-closets, either voluntarily or by order under Section 91 or Section 36 of the Public Health Act, 1875. It was proposed during the year to construct a swimming pool in the Rowntree Park, to be fed by river water. The safety of the river water for the purpose was doubted; in any case it would have needed filtration so it was ultimately decided to supply the pool from the water company's mains.

The new houses built during the year numbered 100, 97 being on the Corporation Tang Hall Estate. In December, 1922, the following proposals were adopted as regards priority for letting houses on this estate: (1) The tenant to be in a position to pay the rent; (2) the tenant to be likely to look after the house and keep it in good and clean condition; (3) subject to (1) and (2), preference to given to applicants living in unhealthy conditions; (4) subject to the foregoing, priority to be given to ex-service men and to widows and dependents of ex-service men, and, other things being equal, in order of application. Owing to the housing shortage, there has been undesirable sub-letting on the estate and the corporation have had to interfere. The York City Council have approved a resolution from Chiswick, that the Government be urged to promote legislation, requiring the payment of rates for unoccupied houses held for sale with vacant possession.

Owing to the practice having become prevalent of selling commercial borax, containing considerable quantities of arsenic, for medicinal purpose, a warning letter has been issued to all the vendors in the city.

Lincoln.

Dr. C. J. Coleman makes reference to the progress of various sanitary measures. Following the big scheme of sewerage in 1921, another large scheme for the relief of the High-street sewer has been put in hand. Cesspools to the number of 43 have been abolished and 77 houses, which formerly drained into cesspools, have been connected to the sewer. The danger from contaminated water-supplies still continues in the Foss Ward, where 11 houses have been connected to the city water-mains. The greatest danger is in Doddington-road and an extension of the water-main is needed to give these houses a safe water-supply. Dr. Coleman complains of the nuisance caused by the streets being filled with the heavy unpleasant acrid smoke given off by the increasing number of steam motors used for haulage purposes. So far no active steps have been taken, and the cause is said to be largely due to the use of poor coal. There was one case of mild small-pox in November which necessitated the opening of the small-pox hospital. The question of increasing the efficiency of this hospital is at present under consideration. The number of new houses built last year was 94, 75 under a housing scheme and 19 by private enterprise. There is still a great shortage of houses and consequent overcrowding, and the existing position is a danger to the health of the city. A representation as to certain insanitary areas has proceeded through the usual routine and an inquiry by the Ministry has recently been held thereon

Correspondence.

"Audi alteram partem."

CENTENARY OF THE LANCET.

To the Editor of THE LANCET.

SIR,—I should like to add a congratulatory message to the many you have received on the Centenary of THE LANCET. I am the proud possessor of the first volume of THE LANCET, which belonged to my great grandfather, and bears on the fly-leaf the bookplate, "Thomas Steele, Surgeon, Reigate, Surrey." At his death it passed with a number of other early volumes of THE LANCET to my grandfather, John Sisson Steele, M.R.C.S., L.S.A., of Reigate. I myself inherited these volumes from my father, Dr. Russell Steele, of Hemel Hempstead. Though, alas, several volumes have disappeared since moving from one house to another, I am still the lucky and proud possessor of Volume No. 1.

I am, Sir, yours faithfully,

RUSSELL V. STEELE, M.B., B.S.

Haverhill, Suffolk, Oct. 19th, 1923.

WARDROP'S OPERATION.

To the Editor of THE LANCET.

SIR,—In the very interesting Centenary Number of THE LANCET it is stated on p. 696 that the name of James Wardrop "may still be familiar from its occurrence in some text-books as the originator of the treatment of aneurysm by distal ligature."

I think that Brasdor was the first to suggest distal ligature of the trunk of the artery affected by the aneurysm. He did not himself perform the operation, nor did it meet with success at the hands of others for many years. Wardrop was the first to perform the operation with success, ligaturing the carotid artery on the distal side of an aneurysm of that trunk. This was in 1825. It was, I think, with the object of giving effect to the two-fold principle of the Hunterian operation that Wardrop subsequently suggested ligature either of the carotid or subclavian artery for the cure of aneurysm of the innominate. He hoped to have a healthy portion of vessel with which to deal and he desired to lessen rather than to arrest the flow of blood through the sac.

I have not looked up the original records, and I am writing from my recollections of the lectures of the late Prof. Pirrie, of Aberdeen, of 43 years ago. He always insisted on defining Brasdor's operation as ligature of the trunk of the artery affected and close to the aneurysm, and Wardrop's operation as ligature of a distal branch.

I am, Sir, yours faithfully,

Leeds, Oct. 16th, 1923. T. WARDROP GRIFFITH.

"DEFATTED" TUBERCLE ANTIGENS.

To the Editor of THE LANCET.

SIR,—Prof. Dreyer's article on "defatted" antigens which appeared in the June number of the *British Journal of Experimental Pathology*, and to which reference had been made in recent issues of your journal, has given me more than usual interest, in that the line of his investigation corresponds somewhat closely to that which I had pursued some years back. With a tubercle antigen freed from fat by repeated treatment with ether and chloroform I had carried out a series of tests on the complement-fixation method for tuberculosis, and published my results[1] in which the technique on the preparation of the fat-free antigen was described. The specific reaction which I had obtained in the test had induced me to try it as a vaccine on tubercle infected guinea-pigs, and, later, with the kind coöperation of Dr. Guy and Dr. Elder, of Edinburgh, on tuberculous patients. The work was, however, interrupted by my departure from that town, and, unfortunately, the number of cases studied was not extensive enough to justify us recording our results. But so far as our investigation went we observed that the infected guinea-pigs which had received the tubercle vaccine survived longer than those which had not, and that the vaccine could be administered to a greater variety of clinical cases of tuberculosis and in much larger doses. The superiority of this lipoid-free antigen over other forms of tubercle antigens is also indicated in the work on the complement-fixation test for tuberculosis independently conducted by Seller and Ramsbottom.[2]

Although much has yet to be done to establish the value of any "defatted" tubercle vaccine as a therapeutic remedy, I believe as I did that a tubercle antigen, when free from lipoids, is more readily emulsified and more favourable to interaction with its antibody, in vivo and in vitro. I am therefore the more glad to see Prof. Dreyer's research on the subject, and await his further results with much interest.—I am, Sir, yours faithfully,

C. Y. WANG, M.D., F.R.C.P. Edin.

University of Hong-Kong, Sept. 15th, 1923.

THE RELATION OF GASTRIC ULCER TO CARCINOMA.

To the Editor of THE LANCET.

SIR,—In connexion with a paper on the above subject that appeared in your issue of Oct. 13th I should like to mention that for over two years a special sub-committee of the Pathological Society of Manchester, with Dr. J. H. Dible, lecturer in pathology at the University, as secretary, has been collecting pathological material bearing on the relation of gastric ulcer and cancer. This collection, in which the specimens dealt with in my paper are included, along with those of several colleagues and some obtained at autopsies, provides a body of material on which it will, I hope, be possible to base a much more comprehensive study of the problem than the cases of an individual surgeon can afford. The existence of this committee and my indebtedness to it, and through it to the department of pathology of the Manchester University, were referred to in my paper as read before the Manchester Surgical Society, but omitted from the copy sent for publication, as being rather of local than general interest. On further consideration, however, I regret this omission, and would ask you to allow me to correct it.

I am, Sir, yours faithfully,

Manchester, Oct. 21st, 1923. JOHN MORLEY.

X RAY DIAGNOSIS OF PREGNANCY: ITS MEDICO-LEGAL ASPECT.

To the Editor of THE LANCET.

SIR,—The annotation in your issue of Oct. 20th, commenting upon the decision of the French law courts in l'affaire d'Evreux, has interested me very much because I have been investigating for over 12 months the value of X rays as an aid in the diagnosis of pregnancy at different stages. By the employment of the correct technique it is my opinion that the fœtal skeleton can be clearly demonstrated upon a skiagram with absolute certainty in any case during or after the sixth month of pregnancy. Earlier than this it is more difficult but not by any means impossible, the difficulty, of course, increasing the earlier the stage of pregnancy. I have recently succeeded in proving pregnancy by the demonstration of the fœtal skeleton on a skiagram in a case which was estimated to be about three and a half months' gestation. An article which I have written on the subject of Radiography of the Fœtus in Utero, with illustrations, is appearing in the October issue of the *Archives of Radiology and Electrology*.

I am of opinion, though, that the judgment for the plaintiff against the French surgeon, who failed to employ X rays as an aid to diagnosis and who operated for a fibroid tumour and found a viable infant, was not fair, because X rays hitherto have not been employed with any degree of success in pregnancy diagnosis, and judging from the literature upon the subject, which is scanty, the surgeon might have been excused if he was not enthusiastic as to the reliability of radiography.—I am, Sir, yours faithfully,

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[1] Brit. Med. Jour., July 5th, 1919.

[2] Jour. Path. and Bacteriol., 1922, xxv., 247.

T. I. CANDY,
Radiologist, Royal Gwent Hospital,
Oct. 20th, 1923. Newport, Mon.

THE PANEL CRISIS AND THE ROYAL COLLEGES.

To the Editor of THE LANCET.

SIR,—A very large number of members of our profession are now embarked upon a great struggle. Up to this point no sound has been heard from either of the Royal Colleges upon the questions at issue. Have we not a right to expect that these bodies, which are responsible for the launching of so many men into the medical profession, and to whom the public generally may look for some guidance in forming its opinion, should come into the open and officially express their views? Their support, given ungrudgingly to their brethren, could not but be a help. Further, although at this moment they are not involved themselves in the struggle, yet who knows how soon panels of "consulting" physicians and surgeons may be formed? Then, even the very presidents themselves will be in a position to say "yea or nay" to work on the panel. I do hope, before it is too late, the Colleges will officially take some part, if only a small one, in the struggle; they have allowed opportunities of service to pass by on other occasions, and there is one here ready to their hand, if only they will grasp it.

I am, Sir, yours faithfully,
LEWIS G. GLOVER.
Hampstead, N.W., Oct. 21st, 1923.

THE LISTER WARD IN GLASGOW INFIRMARY.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 13th there is an annotation dealing with the proposal to remove the Lister ward which stands in the grounds of the Glasgow Royal Infirmary. I agree with Mr. Morris in thinking that if at all possible that ward should be retained, and nobody could have argued the matter for its retention more fairly and more courteously than Mr. Morris has done. At the same time there is another side to the matter and it is this, that the ground on which the ward stands is urgently required for the purpose of building a new and thoroughly up-to-date dispensary for the outdoor department. Situated as the infirmary is in the midst of a teeming population the outdoor department is an enormous one, and the present premises are wholly inadequate. There is no other situation within the infirmary grounds on which this dispensary can be built.

The Royal Infirmary has been in deep water financially. Fortunately it has pulled through, thanks very largely to the chairman of the board of directors, to the honorary treasurer, and to the acting treasurer, but not very long ago it was quite a possibility that a portion of the infirmary would require to be closed down. The plans for the new dispensary have been drawn, and the chairman has shown them not only to every member of the board of management, but also to every member of the staff, and there has been no suggestion whatever that the plans are unnecessarily large or that the new proposed accommodation is not required. There is only one possibility of retaining that ward, and it is that ground be purchased in the immediate neighbourhood of the infirmary and cleared and utilised for the building of the new dispensary. The managers have the greatest difficulty in financing the hospital. Hitherto they have been successful, but they certainly have no money to use for the purchase of additiona ground for the erection of these new buildings. think in all fairness it is up to those who disapprov of the managers' proposed action to provide th funds for the purchase and the clearing of a site in th immediate neighbourhood of the hospital. I am no sure that the dispensary can be built away from th hospital or outside of the grounds, but I am going o the supposition that the thing is possible. Variou people of note have visited the hospital. I am sorr to say without giving the chairman or any of hi colleagues intimation of their proposed visit, an therefore making it impossible for any of the manager to meet them, and after such visits have communicate their adverse opinion of the managers' conduct to th press. I do not know the dictates of modern courtes at all, for I am old-fashioned, but it is an extra ordinary thing that these distinguished gentleme should have visited the Royal Infirmary withou ever signifying to the directors their intention of doin so. It would have afforded the managers of th Royal Infirmary the greatest pleasure to have me some of these gentlemen and to have discussed th matter in an amicable way.

I am, Sir, yours faithfully,
ANDREW FREELAND FERGUS,
Glasgow, Oct. 18th, 1923. One of the Managers.

THE UNITED HOSPITALS WINTER SPORTS CLUB.

To the Editor of THE LANCET.

SIR,—I trust that you will assist me to brin to the notice of your readers this club which wa founded to encourage winter sports amongst past an present students of all recognised medical schools i the United Kingdom. As the Grand Hotel, Griesal Bernese Oberland, was considered a success las season, it has been decided to make this the Clu Hotel for 1923–24. Our President, Lord Dawson, ha very kindly consented to give a trophy for a ski-ra to be held at Griesalp between Jan. 6th and Jan. 13t All particulars can be obtained from the manager the above hotel.

I am, Sir, yours faithfully,
J. DUNCAN LYLE,
Oldfield Lodge, Maidenhead, Oct. 22nd, 1923. Hon. Sec.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs. P. G. Richards (D.) to *Excellent;* T. W Carruthers to *Cleopatra* (on recommg.); and J. B. Crawfor to *Victory*, for R.N. Hospl., Haslar.

Surg. Lt. W. Young to *Iron Duke* (on recommg.).

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. (temp. Col.) J. C. Kennedy is appointed Ho Physician to the King, and is granted the brevet rank Col.; and Maj.-Gen. D. J. Collins, late R.A.M.C., is appointe Hon. Surgeon to the King, vice Lt.-Gen. Sir C. H. Burtchael late R.A.M.C. (ret.).

Capt. J. P. Litt retires, receiving a gratuity, and is grante the rank of Maj.

Capt. H. J. Bensted relinquishes the temp. rank of Maj.

The undermentioned relinquish the acting rank of Maj. Capt. B. L. Davis and Temp. Capt. J. D. Gunn.

Capt. A. W. Dennis retires, receiving a gratuity, and granted the rank of Maj.

ARMY DENTAL CORPS.

Capt. G. W. Allen resigns his commn.

SPECIAL RESERVE OF OFFICERS.

Supplementary to Regular Units or Corps: Capt. J. F. W Sandison relinquishes the acting rank of Lt.-Col.

TERRITORIAL ARMY.

Lt. G. F. Shepherd to be Capt.

ROYAL AIR FORCE.

Squadron Leader R. J. Aherne is granted a permanen commn.

Obituary.

HARRY MICHIE, M.B., C.M. ABERD.,

HON. SURGEON TO THE SAMARITAN HOSPITAL FOR WOMEN, NOTTINGHAM.

Dr. Harry Michie, who was a well-known Nottingham surgeon, died suddenly from cardiac syncope while out shooting at Flintham on Oct. 13th. A native of Forfarshire, he was born at Edgell in 1855, and, after a successful career at Aberdeen University, graduated M.B., C.M. in 1881. For a few months he practised as an assistant to Dr. Owen Taylor at Nottingham, then returned to Scotland, and, subsequently, in 1884, started a practice again at Nottingham, where he soon gained for himself a wide reputation, which was added to by some good literary contributions. He had been honorary surgeon to the Samaritan Hospital for Women, Raleigh-street, for some 37 years, and was a past-president of the Nottingham Medico-Chirurgical Society. He leaves a widow and two sons.

Dr. P. Kinmont writes as follows of his friend and colleague :—

"With tragic suddenness Dr. Michie died in the shooting field while engaged in the enjoyment of his favourite recreation. He had left home apparently in his usual health and in the best of spirits. Suddenly, about mid-day, without suffering, without scarcely any knowledge of what was happening, he passed over to the Great Beyond. Those of us who were privileged to know Dr. Michie intimately, feel he would have preferred no other end. To me his loss is irreparable—gone is my trusty, staunch and loyal friend of the last 15 years. Countless numbers of his patients will recall with gratitude and affection their genial adviser and helper. No matter how humble the sphere of life Dr. Michie was ever ready and willing to lend his skill to alleviate suffering without thought of worldly gain. His ability and skill in his special sphere were beyond dispute and estimation. Dr. Michie's very presence in the sick room or operating theatre with those kindly twinkling eyes, that quiet voice and genial manner, was at once an inspiration to courage and confidence. In his hands we felt safe, we loved and trusted him, and he did not fail us. We cannot easily replace such a tower of strength and faithful counsellor in times of trouble."

THE LATE SIR WILLIAM RICE EDWARDS.

Sir Patrick Hehir writes to add the following appreciation of the late Major-General Sir William Rice Edwards whose obituary notice recently appeared in THE LANCET :—

"He was a personal friend of mine for over 40 years. We qualified together, were at Netley together, and on several occasions worked together in India ; our aims were similar, he on the civil, and I on the military side of the I.M.S. In 1913 he did his military training with me for promotion to A.D.M.S., and, although civil employment was more congenial to him, he went through this course most diligently, and did excellent work afterwards as an A.D.M.S. on the North-West Frontier. Edwards had wide and varied professional experience, was an ideal executive officer, and a sound and popular physician, and as Director-General of the Indian Medical Service proved himself to be one of the best administrative medical officers that Service ever had. His devotion to the I.M.S. was unalloyed by anything in the shape of personal ambitions. In his advocacy of the interests of the I.M.S. he was quite fearless ; indeed, his persistence and his firmness made him sometimes unpopular in high quarters, but only for a time. A few months after becoming Director-General, he, in the Legislative Council, boldly declared his policy as regards the I.M.S., the improvements he considered necessary to carry out in it, and the way in which these improvements should be introduced. That was the occasion on which he said that the conditions of the I.M.S. had become intolerable. Many of the suggestions he then made have since been given effect to. It was largely due to Sir William Rice Edwards that the I.M.S. owes the concession that its Director-General may now see the Viceroy personally on technical matters, a privilege which has likewise been extended to all Inspectors-General of Civil Hospitals, and has been of the greatest use to the medical services in India. Sir William Rice Edwards was a reliable friend and an excellent companion."

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful :—

DIPLOMA IN PUBLIC HEALTH.

Lachhman Singh Ahluwalia, Gilbert A. Back, William Bird, John McPhail Campbell, Jhangi Ram Chaudhri and Herbert L. Cronk (distinguished in the Application of Sanitary Science), Robert Cunningham, Mary A. Grant, Alice J. Gray, Susan M. S. Jamieson, Henry D. Kelf, John McWilliam McDonald, Wazir Chand Mathur, Archibald C. Munro (distinguished in the Principles of Hygiene, in Bacteriology, and in the Application of Sanitary Science), Cuthbert E. R. Norman, Alexander C. Paterson, Rajapuram Nellaveran Raja, Abdel Magid Ramzy, Gladys H. Randall (distinguished in the Principles of Hygiene), Abd El-Hamid Sadek, Manuel J. Saldanha, Ardeshir Merwanji Seervai, Florence G. Sherry, Isobel M. Smith, Katherine C. Spence, Bertram Suggit, Nora I. Wattie, Robert Weaver, Alan D. Whitelaw, and Catherine B. Wilson.

DIPLOMA IN HYGIENE.

Ahmed Mohamed Kamal (distinguished in the Application of Sanitary Science) and Mohamed El Sebaiy.

UNIVERSITY OF OXFORD : *Hospital Scholarships.*—The following members of the Medical School have been elected to scholarships at the undermentioned hospitals :—Guy's Hospital : War Memorial Scholarships, £80, D. Lurie, Lincoln College ; University Students Open Scholarship, £80, W. D. B. Read, Magdalen College. London Hospital : Second University Scholarship, V. H. Brink, Hertford College. King's College Hospital : Burney Yeo Scholarships, J. W. de W. G. Thornton, Magdalen College, and J. A. Eyres, Lincoln College. St. Mary's Hospital : University Scholarships, £200, R. B. Bourdillon, University College, and P .C. Mallam, Queen's College. St. George's Hospital : University Scholarship, H. A. Byworth, Oriel College. Westminster Hospital : University Scholarship, £80, S. Segal, Jesus College.

UNIVERSITY OF LONDON.—A course of four lectures on the Treatment of Injuries of the Long Bones produced by Accident or Disease, will be given at Guy's Hospital Medical School by Prof. E. W. Hey Groves, at 5.30 P.M., on Nov. 8th, 9th, 12th, and 13th. At the first lecture the chair will be taken by Mr. H. J. Waring.

A Gift for Otology.—The University of London have accepted a gift of £10,000 from Mr. Geoffrey E. Duveen to found a chair of otology, and the donor intends to allocate a further £15,000 to University College Hospital for the provision of modern treatment of the deaf. The double gift is made in memory of the donor's father, Mr. Henry J. Duveen, one of the founders of the art firm of Duveen Bros., of London, Paris, and New York. Mr. Duveen the elder brought together some of the most famous art collections in America and the French honoured his reputation by appointing him Chevalier of the Legion of Honour.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly Council meeting was held on Oct. 18th, with Sir John Bland-Sutton in the chair. A vote of thanks was passed to Mrs. Elliott, widow of Dr. John Elliott, of Chester, for presenting a number of skulls and skeletons from the cemetery of the Roman Occupation period exposed during the extension of the Chester Infirmary, and to Prof. Derry, of Cairo, for presenting a number of interesting and valuable specimens brought over by him from Egypt.—On behalf of the Committee on the Annual Report of the Council a draft copy of the report to be presented to the Fellows and Members at the annual meeting on Nov. 15th was submitted, and the report was approved and adopted.—Mr. Herbert Tilley and Mr. Arthur H. Cheatle were elected examiners for Part I. of the examination for the Diploma in Laryngology and Otology. Mr. H. James Marriage was elected examiner for Part II. of the examination for the same diploma.—The President reported that the Sir Gilbert Blane medal had been awarded to Surg.-Lieut.-Comdr. Julian Lionel Priston, M.B., R.N.—The President reported the receipt of a portrait by Troubtzkoy of the late Sir William MacCormac, President of the College from 1896 to 1900, bequeathed to the College by Lady MacCormac.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At the meeting of the College held on Oct. 17th Sir Harold J. Stiles, LL.D., was elected President for the ensuing year, Sir David Wallace, C.M.G., Vice-President, and Mr. Alexander Miles, F.R.C.S.E., Secretary and Treasurer.

Fellowship Examination.—The following candidates, who passed the requisite examinations between July 9th and 13th, were admitted Fellows :—

Sankaranainarkoil Chidambaranatha Alagappan, Walter M. Ash, Frederick W. W. Baillie, Edgar B. Barnes, Harold C. Brayshaw, Reginald C. Clifford, Bernard T. Cullen, Manikkam Durairaj David, Alexander Galletly, Leslie J. Middleton, Douglas A. Mitchell, Norman A. M. Petersen, and Herbert B. Scott.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow.—At examinations recently held the following candidates were successful :—

Third Examination.

David Lumsden, George McCracken, Ernest G. Douglas, Cassaly Ismail, Philip Henry, Byerley C. F. Leembruggen, Lewis Mackenzie, William W. Crawford, Jessie R. Bruce, Kristian Skulberg, Arthur A. F. Shepherd, and John B. Hutchison.

Pathology.—Guthrie Russell, John A. Mains, Elizabeth C. Mudie, and Joseph W. McVicker.

Materia Medica.—John L. Dearberg, Robert J. Snodgrass, Alistair G. Cruikshank, Arthur G. Farquharson, Henry B. Martin, Thomas D. Gould, William Jackson, William Allan, and William E. Williams.

Final Examination.

Joseph W. Ridley, James Ryan, Dunstan D. S. Outschoorn, James S. Allan, Soo Hock Tan, Arthur H. Stephenson, Samuel L. Navaratnam, Robert G. Melrose, Joseph R. Whitaker, Carl F. Birkenstock, Alexander B. Williamson, Don Swithin Merl Emmanuel Perera, Phyllis M. Walker, Alexander Ross, Charles M. Hinds, Andrew Bury, Charles L. S. Ferdinands, Alexander L. Tinto, Alexander Gillies, Hieronymus Hoffmann, George A. P. McConey, William R. Robertson, John G. Thomas, Ronald M. MacKinnon, and Herbert E. Schokman.

Medicine.—Richard F. Kerr, Akinlawon Adefolu, Velayatham Pillai Thiyagaraja, Arthur W. H. Noble, Pattel Shankerlal Hathibhai Masters, James Kirkness, and Jitendra Nath Dey.

Surgery.—Arnold Raff and Vethavanam Vaithialingham.

Midwifery.—Arnold Raff, Annie H. Sutherland, Akinlawon Adefolu, Velayatham Pillai Thiyagaraja, George C. Philips, Vethavanam Vaithialingham, Sinnatamby Thambipillai, Clement A. Barrow, Joseph McAuley, Wilhelmina C. Storrie, Elizabeth Clark, and William Melrose.

Medical Jurisprudence.—William T. Baker, Tom G. S. Harkness, Joseph B. Stromier, Irma E. L. Mackenzie, James Houston, James K. Hunter, Mohammed Mustafa El-Makkawi, James H. MacAlpine, John Harkness, Nashid Tadros Yusif, Donald L. Crawford, Bruce F. Home, and Henry A. Newton.

The following candidates having passed the requisite examinations have been admitted Diplomates in Public Health :—

William S. Macdonald, Elizabeth N. Thompson, Alexander R. Lester, James F. Seale, William Campbell, Harvey Nichol, Robert G. Shaw, Dorothea I. Baird, Peter Hutchison, Katharine J. Guthrie, James S. McLean Gray, James L. Halliday, Margaret A. Galbraith, William McKie, Peggy L. Mitchell, John G. Gill, Kenneth A. Macrae, Frank D. M. Beaton, Katrine Dunn, David T. Richardson, Catherine Hill, Helen Campbell, George W. Murray, Charles M. Smith, and Robert Wiggins.

Royal College of Physicians of Ireland.—At the annual stated meeting of the President and Fellows of the College, held on Oct. 18th, the following officers were elected for the coming year :—

President : Dr. Michael F. Cox. Vice-President : Sir William J. Thompson. Censors : Sir W. J. Thompson, Dr. W. J. Dargan, Dr. J. Speares, Dr. R. E. Tottenham. Additional Examiners to take the place of an absent Censor or Examiner : Medicine, Dr. G. Nesbitt ; Midwifery, Dr. J. S. Sheill ; Medical Jurisprudence and Hygiene, Dr. S. T. Gordon. Examiners for the Licence to practise Midwifery : Dr. Gibbon FitzGibbon and Dr. MacLaverty. Supplemental Examiners under the Conjoint Scheme : Biology, Dr. G. Nesbitt ; Chemistry, Dr. H. C. Earl ; Physics, Dr. W. A. Winter ; Pharmacy, Materia Medica, and Therapeutics, Dr. F. X. Callaghan ; Physiology, Dr. Harold Pringle ; Anatomy, Dr. H. C. Earl ; Pathology, Dr. J. T. Wigham ; Medicine, Dr. F. C. Purser. Examiners for the Conjoint Diploma in Public Health : Hygiene, Dr. H. Bewley ; Bacteriology, Dr. H. C. Earl ; Sanitary Law and Vital Statistics, Sir W. J. Thompson ; Meteorology, Sir John Moore. Examiners for the Conjoint Preliminary Examination : Languages, Mr. E. H. Alton, F.T.C.D. ; Irish, Mr. E. J. Gwynn, F.T.C.D. Examiners for the Membership : Practice of Medicine, Dr. A. R. Parsons and Dr. J. Speares ; Clinical Medicine, Dr. W. J. Dargan and Dr. J. A. Matson ; Pathology, &c., Dr. H. C. Earl and Dr. A. C. O'Sullivan ; Obstetrics and Gynæcology, Dr. T. H. Wilson and Dr. Bethel Solomons. Representative on the General Medical Council : Sir John Moore. Representatives on the Committee of Management : Dr. Walter Smith, Sir John Moore, and Dr. T. Percy C. Kirkpatrick. Treasurer : Dr. Henry Bewley. Registrar : Dr. T. Percy C. Kirkpatrick. Librarian : Mr. R. Phelps. Law Agent : Messrs, Stephen Gordon, Son, and Wilson. Agents to the Trust Estate of Sir Patrick Dun : Messrs. Townshend.

Edinburgh University Club of London.—The 200th dinner of the Club will be held at the Connaught Rooms, London, at 7.30 P.M., on Friday, Nov. 23rd. The chair will be taken by the Earl of Balfour, the president of the Club, and there will be a large gathering of members and their guests. The Club now numbers 600 members.

Fellowship of Medicine and Post-Graduate Medical Association.—The programme of special courses arranged for November covers a wide range of subjects, beginning with a fortnight's course in general medicine and surgery at the Royal Northern Hospital in conjunction with the Central London Ophthalmic Hospital, North-Eastern Fever Hospital, and the Royal Chest Hospital. Clinical demonstrations in the various departments will be given each day from 10.30 A.M., concluding with a lecture at 4.30 P.M. Also, beginning on Nov. 5th and continuing throughout the month, there will be a course in Gynæcology at the Chelsea Hospital for Women. Lectures will be given by members of the staff each day, preceded by demonstrations in the out-patient department or operations in the theatre. A month's course in psychological medicine has been arranged at the Maudsley Hospital, Denmark Hill, and will consist of lectures and demonstrations on the psychoneuroses, the practical aspect of mental deficiency, the pathology of mental diseases, clinical psychiatry, and crime and insanity. Also, at the London Lock Hospital (Dean-street and Harrow-road), a comprehensive course of lectures and clinical demonstrations on venereal diseases will be given from Nov. 5th to 29th. A lecture on some aspect of the subject will be given each day supplemented by clinical work in the wards and out-patient department. From Nov. 19th to Dec. 15th a practical course in ophthalmology will be given at the Royal Westminster Hospital. In addition to clinical instruction every afternoon from 2 P.M., a practical fundus class and specia demonstrations in medical ophthalmology and methods of examination will be given three times a week at 10 A.M Beginning on Monday next, Oct. 29th, a two weeks' course in dermatology will be given at the Hospital for Diseases of the Skin, Blackfriars, consisting of clinical instructions every afternoon from 2.30 with special demonstrations on selected cases. Further particulars and copies of the syllabus of any of the above courses will be forwarded on application to the Secretary to the Fellowship of Medicine, at 1, Wimpole street, W.

Royal College of Physicians of London.—The Bradshaw lecture will be delivered on Nov. 1st at 5 P.M., by Dr. John Hay, the subject being Angina Pectoris : Some Points in Prognosis. Dr. C. J. Singer will give the FitzPatrick lecture on the History of Anatomy on Nov. 6th and 8th.

The President of the Dermatological Section of the Royal Society of Medicine and Mrs. Graham Little held an evening reception on Oct. 16th to meet Dr. John Addison Fordyce, Professor of Dermatology, Columbia University and Bellevue Hospital Medical College, New York. Man distinguished guests were present. On Oct. 18th D Fordyce read a paper on the Treatment of Neuro-syphili before the Dermatological Section, which we publish on p. 932 of our present issue.

In reviewing last week a series of five admirabl but unrelated "Surgical Monographs" we protested strongl against the arbitrary action of the publisher in refusing t supply any one of the monographs separately. We now learn that at a meeting of the Library Committee of th Royal Society of Medicine it was resolved that the purchas of the monographs would be considered only when th publishers had withdrawn this restriction.

North-Western Tuberculosis Society. — Dr Leonard Hill, F.R.S., will deliver a lantern lecture, entitle Climate and the Treatment of Consumption, at th Tuberculosis Department, Joddrell-street, off Hardman street, Deansgate, Manchester, on Thursday, Nov. 1st, a 3 P.M. Medical practitioners interested in this subject ar invited to attend.

London Hospital Medical College.—The following awards have been made : "Price" University Scholarship in Human Anatomy and Physiology : H. L. Green Sidney Sussex College, Cambridge ; proxime accessit, V. F Brink, Hertford College, Oxford (awarded a second scholarship).

Society of Medical Officers of Health.—Th annual dinner was held on Oct. 19th at the Hotel Ceci London, Dr. T. W. Naylor Barlow, O.B.E., the president of the Society, occupying the chair. A large and representativ company was present, the guests including Sir William Joynson-Hicks, the Minister of Health, Sir George Newma and Sir Arthur Robinson, of the Ministry of Health, M Justice Swift, Sir Humphry Rolleston, Lord Riddell, S Dawson Williams, Dr. Alfred Cox, and Sir Squire Sprigge. Th "Prosperity of the Society" was proposed by the Minist of Health, who said that his new official position would brin him into intimate contact with the Society, and that he wa quite sure that all their members would join with him i a campaign which he looked forward to fighting during th next few years, if he was spared to remain in office, for th better distribution of the surplus urban populations in th country districts. He would like, he said, with th coöperation of local authorities, to drive great arteri through overcrowded districts into unoccupied region forming giant thoroughfares across country districts, when the people, now crowded in slumdom, would follow the new routes into health and healthy occupation. Dr. Barlow, whose reply was a happy admixture of the serious and the humorous, said that he claimed for the medical officers of health the position of being the outposts of the Ministry of Health, and he assured the Minister that the Society would place at his disposal all the knowledge and experience which they had acquired and were acquiring. The toast of "The Guests" was proposed by Colonel F. E. Fremantle, M.P., and was responded to by Lord Riddell and Sir Squire Sprigge, "The Health of the Chairman" being happily dealt with by Sir Benjamin Johnson, High Sheriff of Lancashire. The proceedings during the evening were interspersed by songs from Miss Victoria Barton and Mr. John Saville, accompanied at the piano by Miss Iris Tregoning. Mr. Tom Clare also entertained at the piano.

BRITISH DENTISTS' HOSPITAL.—The annual general meeting will be held to-day, Saturday, Oct. 27th, at 3.30 P.M., with Sir Harry Baldwin, the president, in the chair.

SMALL-POX IN ENGLAND AND WALES.—During the week ended Oct. 13th, 33 new cases of small-pox were brought to the notice of the following sanitary authorities: Berks 3 (Wokingham); Derbyshire 1 (Chesterfield); Gloucestershire 20 (Gloucester 16, "including one case notified as chicken-pox but rediagnosed as small-pox," East Dean R.D. 3, Gloucester R.D. 1); Northumberland 1 (Tynemouth); Notts 5 (Kirkby-in-Ashfield 4, Mansfield 1) Yorks North Riding 2 (Middlesbrough 1, Flaxton R.D. 1); Yorks West Riding 1 (Adwick-le-Street).

INSTITUTE OF HYGIENE.—A lecture will be delivered on Oct. 30th by Dr. W. G. Savage on the Balance of Diet, at 3.30 P.M. On Nov. 6th Dr. James Fenton will speak on Preservatives and Adulterants in Foods; and on Nov. 13th Dr. A. Middleton Hewat will discuss Pure Food Supplies. On Nov. 20th Sir Kenneth Goadby will speak on Diet and Disease; and on Nov. 27th Mr. Joseph E. Adams will give an address on Habits, Diet and Malignant Disease. These lectures are part of a series on Food and Diet, which are being delivered under the auspices of the Institute of Hygiene, 33–34, Devonshire-street, London, W. 1, at 3.30 P.M. on Tuesdays.

CHADWICK PUBLIC LECTURES.—The following lectures will take place during October, November, and December, 1923. On Oct. 29th, at 5.15 P.M., at the house of the Medical Society of London, Chandos-street, Cavendish-square, with Sir Malcolm Morris presiding, Dr. C. Killick Millard will lecture on the Disposal of the Dead. On Nov. 9th, 16th, and 23rd, at 8 P.M., at the house of the Royal Society of Arts, John-street, Adelphi, Major Harry Barnes will give three lectures on Hygiene and Architecture. At the first lecture on Health and Town-planning, Mr. W. E. Riley will preside. At the second on Health and the Building, Mr. J. Slater will preside, and at the third, on Health and the Hospital, Sir William J. Collins will preside. On Dec. 3rd, at 8 P.M., at the Goldsmiths' College Lecture Hall, New Cross, Dr. A. K. Chalmers will lecture on Housing Standards—How they can be Raised, Sir William J. Collins again presiding, and on Dec. 5th, at 5.30 P.M., Dr. Chalmers will lecture on the same subject at Kensington Town Hall, with Sir James Crichton-Browne in the chair. Two lectures will be given in November at Bristol University, the Vice-Chancellor presiding. On Nov. 22nd and 29th, at 5.30 P.M., Dr. W. M. Willoughby will lecture on the Theory and Reasonable Practice in the Disinfection and Disinfecting of Ships. The first lecture will be devoted to Disinfection in Diseases due to Bacteria, and the Ultra-microscopic Viruses, and the second to Disinfection and Disinfecting in Insect and Rat-borne Diseases. Admission is free to all these lectures. Further particulars may be obtained from the Secretary, at the offices of the Chadwick Trust, 13, Great George-street, Westminster, London, S.W. 1.

MANCHESTER LOCAL VOLUNTARY HOSPITALS COMMITTEE.—This Committee has issued a special report dealing with the 17 local hospitals and their maintenance on the voluntary system, and also on their local work and funds. The Committee representative was appointed in 1921, and has on it representatives nominated by the Voluntary Hospitals Commission, the City Council, the hospitals, and two medical representatives. Amongst the other good offices of the Committee it advised the Voluntary Hospital Commission as to the distribution of £17,485 to hospitals in the local area, and was instrumental in arranging a scheme for raising money from employers and employees for the Convalescent Homes Fund. The statistics show that for 1922 the total ordinary income of the 17 hospitals was £231,852 and the expenditure £281,276, thus giving a deficit for the year of £49,424. Of the total income only 16 per cent., or £36,969, was subscribed by patients; £38,997 was received from local authorities and approved societies in respect of patients or for the use of beds; £51,476 was derived as income from invested property, and the balance, £104,400, was met from various voluntary sources. For maintenance the ordinary expenditure was £281,276, leaving a deficit for the year of £49,424. These figures do not include extraordinary income—legacies, grants from Voluntary Hospitals Commission—but if these be added to ordinary income, there still remained a deficit for the year of £15,847. The Committee recommend that free legacies should be invested in order to help provide a regular source of income, but many hospitals, owing to their urgent financial needs, have been unable to follow this advice, and such legacies had to be employed for current expenditure. The statistics as to attendance show that the Manchester and Salford Hospitals, besides providing for the local needs of the city and borough, are largely made use of by patients from the adjoining towns and from areas much further afield —e.g., from Yorkshire, Cumberland, Westmorland, Derbyshire, Cheshire, and Wales. The estimated cost of in-patients was £224,398, and the average cost of bed occupied was £121 3*s*. 9*d*. and of each in-patient £8 3*s*. 6*d*.; the average payment by each patient was 15*s*. 11*d*., and the amount to be provided for each in-patient from voluntary sources was £7 7*s*. 7*d*. and the amount provided from voluntary sources for each out-patient 5*s*. 9*d*.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear it if reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, W.
THURSDAY, Nov. 1st.—4.30 P.M.
Papers to be read: E. G. T. Liddell and Sir Charles Sherrington, P.R.S.: A Comparison between Certain Features of the Spinal Flexor Reflex and of the Decerebrate Extensor Reflex respectively. J. Barcroft and H. Barcroft: The Blood Pigment of Arenicola. T. Deighton: The Basal Metabolism of a Growing Pig. (Communicated by Prof. T. B. Wood.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Oct. 30th.

Social Evening.

The first Social Evening of the Session will be held on Tuesday, Oct. 30th, at 8.30 P.M.

Fellows, Members of Sections, Associates and their friends will be received by the President, Sir William Hale-White, and Lady Hale-White, at 8.30 P.M.

The Society's Gold Medal will be presented to Prof. Gowland Hopkins, F.R.S., Professor of Biochemistry, University of Cambridge, who will give, at 9 P.M., a short Address entitled "Stimulants of Growth."

LIBRARY:
On this evening the principal Reading Room will be closed at 5 P.M., but readers will be accommodated in other rooms.

Thursday, Nov. 1st.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.
Specimens:
Mr. A. C. Palmer: (1) Strangulated Uterine Hernia of Small Intestine. (2) Congenital Cavernous Hæmangioma of Liver.
Short Communication:
Dr. Alfred B. Danby: Three cases of Pregnancy with Extravasation of Blood in Association with Albuminuria.
Paper:
Dr. Moreland McCrea and Mr. Victor Bonney: The Relation between Certain Disorders of the Female Pelvic Organs and Symptoms ordinarily considered the Province of the Physician.

UNIVERSITY OF LONDON SEMON LECTURE, in the Barnes Hall, at 5 P.M.
Dr. A. Logan Turner: The Advancement of Laryngology: a Plea for Adequate Training and Closer Cöoperative Action.

Friday, Nov. 2nd.

LARYNGOLOGY: at 4.45 P.M. (Cases at 4 P.M.)
Cases and Specimens will be shown by Sir James Dundas-Grant, Mr. A. J. Hutchison, Dr. Macleod, Mr. J. F. O'Malley, Mr. J. S. Fraser, and others.

ANÆSTHETICS: at 8.30 P.M.
Paper:
Dr. Henry Featherstone: A Critical Report on 100 Cases of Spinal Analgesia with Tropacocaine.

Saturday, Nov. 3rd.

OTOLOGY: at 10 A.M.
Demonstration:
Mr. J. S. Fraser: Demonstration of Lantern Slides showing Changes in Inner Ear in a Congenitally Deaf Dog.

Cases:

Sir James Dundas-Grant will show a case illustrating Digital Compression of Vertebral Arteries for Pulsating Tinnitus.

Cases will also be shown by Mr. T. B. Layton, Dr. A. R. Friel, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Oct. 29th.—10 a.m., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 3 p.m., Mr. Simson: Diseases of Women.

Tuesday.—10.30 a.m., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 p.m., Mr. Tyrrell Gray: Surgical Wards.

Wednesday.—10 a.m., Dr. Saunders: Medical Diseases of Children. 12.15 p.m., Dr. Burnford: Medical Pathology. 3 p.m., Dr. Pernet: Skin Dept.

Thursday, Nov. 1st.—10 a.m., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 p.m., Mr. MacDonald: Genito-Urinary Dept.

Friday.—10 a.m., Dr. Drummond Robinson: Gynæcological Operations. 2 p.m., Mr. Banks-Davis: Nose, Throat, and Ear Dept. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Medical Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: October–November, 1923.

Clinical Lectures and Demonstrations.

Monday, Oct. 29th.—2 p.m., Out-patient Clinic: Dr. Hinds Howell. 3.30 p.m., Disorders of Intellectual Expression: Dr. Kinnier Wilson.

Tuesday, Oct. 30th.—2 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Muscular Atrophies: Dr. Adie.

Thursday, Nov. 1st.—2 p.m., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 p.m., Cerebral Tumours: Dr. Gordon Holmes.

Friday, Nov. 2nd.—2 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Cerebral Abscess: Mr. Sydney Scott.

Course of Lectures and Demonstrations on Neuro-Pathology.

Monday, Oct. 29th.—12 noon, Paths of Infection of Central Nervous System: Dr. J. Godwin Greenfield.

A Course of Lectures on the Anatomy and Physiology of the Nervous System commenced on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s.* The fee for the Anatomy and Physiology Lectures is £3 3*s.* If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7*s.* will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.

C. M. Hinds Howell, Dean of Medical School.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.

Tuesday, Oct. 30th.—5 p.m., Dr. S. E. Dore: Alopecia.

Thursday, Nov. 1st.—5 p.m., Dr. J. M. H. MacLeod: Elementary Pathology of the Skin.

HOSPITAL FOR SICK CHILDREN, Gt. Ormond-st., W.C.

Thursday, Nov. 1st.—4 p.m., Dr. Thursfield: Rickets.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

Wednesday, Oct. 31st.—4 p.m., Major H. G. Anderson: Air Accidents.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 p.m. each day.)

Monday, Oct 29th.—(At the Children's Hospital.) Mr. McMurray: Hip Conditions in the Child.

Tuesday.—(At the Southern Hospital.) Mr. Newbolt: Operations on the Elderly.

Wednesday.—(At the Northern Hospital.) Mr. McMurray: Derangements of the Knee-Joints.

Thursday, Nov. 1st.—(At the Stanley Hospital.) Dr. Wadsworth: The Significance of the Heart Sounds.

Friday.—(At the Royal Infirmary.) Mr. Litler Jones: Surgical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Oct. 30th.—4.15 p.m., Mr. W. H. Hay: Tumours and Ulcers of the Mouth.

Friday, Nov. 2nd.—4.15 p.m., Dr. T. H. Oliver: Physiology and Pathology of Diabetes Mellitus.

SALFORD ROYAL HOSPITAL.

(Special Course on Surgical Tuberculosis.)

Thursday, Nov. 1st.—4.30 p.m., Mr. G. Jefferson: Tuberculosis of the Lymphatic Glands.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

Wednesday, Oct. 31st.—(At Swindon), Prof. F. H. Edgeworth: *Bacillus Coli* Infections of the Urinary Tract.

Appointments.

Paddington Green Children's Hospital: Leys, D., M.B., B.Ch. Oxf., House Physician; Hyslop, W. M., M.B., Ch.B. Edin., House Surgeon.

Royal Infirmary, Edinburgh: Osborne, D. C., M.B., Ch.B. Edin.; Martin, K. A. F., M.B., Ch.B. Edin.; Barlow, P., M.B., Ch.B. Edin.; Butler, A. J. H., M.B., Ch.B. Edin.; Walker, E. R. C., L.R.C.P. Edin.; Anderson, H. P., M.B., Ch.B. Edin.; Watson, W. N. Boog, M.B., Ch.B. Edin.; Yooll, M. A. G., M.B., Ch.B. Edin., Resident House Physicians. Munro, H., M.B., Ch.B. Edin.; McClure, J. H.; Morrison, W., M.B., Ch.B. Edin.; Evers, J., L.R.C.P. Edin.; Cameron, D., M.B., Ch.B. Edin.; Hetherington, W., M.B., Ch.B. Edin.; Dinwiddie, J. L. N., M.B., Ch.B. Edin.; Caird, J. C., M.B., Ch.B. Edin.; Kennedy, C. D., M.B., Ch.B. Edin.; Robertson, I. M., M.B., Ch.B. Edin.; Cowan, J. M., M.B., Ch.B. Edin.; Thwaites, H. V., M.B., Ch.B. Edin.; Wilson W. L., M.B., Ch.B. Edin., Resident House Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Bath Royal United Hospital.—Asst. H.S. £150.
Blackpool, Victoria Hospital.—Asst. H.S.
Bolton Education Committee.—Ophth. S. 3 guineas per session.
Bootle Borough Hospital.—Jun. Res. M.O. £125.
Bristol General Hospital.—Two H.P.'s., H.S., &c. Each £125.
Cambridge, Addenbrooke's Hospital.—H.S. £130.
Charing Cross Hospital Medical School.—Chemist to Bio-chemical Dept. £500.
City of London Hospital for Diseases of the Heart, Victoria Park, E.—H.P. £125.
Dundee Royal Infirmary.—Hon. Asst. Vist. Phys.
Eastern Dispensary, Leman-street, E.—P.
Hereford County and City Mental Hospital.—Second Asst. M.O. £350.
Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.
Islington Dispensary, 303, *Upper-street, N.*—Sen. and Asst. R.M.O.'s. £300 and £220 respectively.
Leeds Public Dispensary.—Sen. Res. M.O. £200.
Lincoln County Hospital.—Jun. H.S. £150.
Liverpool Eye and Ear Infirmary.—H.S. £100.
London County Mental Hospital Service.—Seventh Asst. M.O. £432.
London Jewish Hospital, Stepney Green, E.—Res. M.O. and Jun. Res. M.O. £150 and £100 respectively.
Nottingham General Dispensary.—Two Res. Surgs. Each £250.
Prince of Wales's General Hospital, Tottenham, N.—Hon. Asst. S. to Ear, Nose, and Throat Dept.
St. George's Hospital Convalescent Branch, Copse Hill, Wimbledon.—R.M.O. £300.
St. Mary's Hospital, Paddington.—Two Bacteriologists. £400.
St. Mary's Hospital for Women and Children, Plaistow, E.—Asst. Res. M.O. £130.
St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.
Salisbury Municipality, Rhodesia.—M.O.H. £600.
Sheffield Royal Infirmary.—Ophth. H.S. £100. H.P. £100.
Southampton County Borough.—Second School Dentist. £450.
Torquay, Torbay Hospital.—H.S. £200.
West London Hospital, Hammersmith-road, W.—Hon. Asst. S. to Throat, Nose and Ear Dept.

Births, Marriages, and Deaths.

BIRTHS.

Boys.—On Oct. 19th, at Brookside, Woodhall Spa, the wife of Leonard Boys, M.B., of a son.

Jobson.—On Oct. 20th, at The Cottage, Kingsdown, near Deal, the wife of J. Stanley Jobson, M.B., F.R.C.S., of Weymouth-street, W., of a son.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Presentation to a Medical Man.—On the evening of Oct. 20th, a large gathering of members of the medical profession and a few friends assembled at dinner at the Royal Albion Hotel, Brighton, to bid an official farewell to Dr. Edmund Hobhouse, who recently gave up his residence at Hove on his appointment as a member of the Lord Chancellor's Pensions Appeals Tribunal. Dr. W. Broadbent presided and Dr. L. A. Parry presented an address. Dr. Henry Gervis proposed "The Health of Dr. Hobhouse," and was supported by Dr. Sanderson. Dr. Hobhouse, in response, said that he should look back on his time in Brighton with great happiness. The profession in Brighton was a very contented one, and this was largely due to the goodwill of its members and the fact that the two bodies in Brighton—the British Medical Association and the Medico-Chirurgical Society—had always been in harmony one with another.

Notes, Comments, and Abstracts.

THE POSITION OF THE NATIONAL INSURANCE COMMITTEES.

Summary of the Presidential Address delivered to the Annual Meeting of the National Association of Insurance Committees on Oct. 19th, 1923,

BY SIR WILLIAM GLYN-JONES.

Sir William Glyn-Jones invited the delegates to consider how far after 12 years' working the promises of the Insurance Act had materialised in fulfilment, and particularly whether insurance committees were performing the functions allotted to them by Parliament, and whether the duties at present performed by the insurance committees justify their continuance. In so far as the Insurance Acts provided direct personal and individual benefits such as medical treatment, maternity benefit, and sick pay, he asserted that the contracts had been in the main fulfilled. Insured patients were better served and doctors better paid than they were, and though neither should be fully satisfied, the improvement in service and pay as compared with the situation prior to 1911 would in itself justify the Insurance Act. In 1922 insured persons were paid over 8 million pounds in sickness benefit, and more than 3¼ million pounds in disablement benefit; whilst it is estimated that over 6 million persons received medical treatment, involving 44 million attendances. Maternity benefit had proved an undoubted boon. Sanatorium benefit was no longer a part of the scheme, but the special provisions relating to tuberculosis, incomplete as they were, enabled a substantial advance to be made in the prevention and treatment of that great scourge.

Successful Working of the Act.

Sir George Newman, chief medical officer of health of the Ministry of Health, had reported that "great gains have been made in the health of the nation, and the death-rate is declining." To the working of the Insurance Act must be attributed a due share of the credit. Whilst insurance committees had played a great part in the work thus accomplished, they had not been given the responsibilities nor exercised the powers even in those matters which Parliament in the Insurance Act entrusted to them. The Act gave to insurance committees the administration of medical benefit, and of all additional benefits of the nature of medical benefit. They had to make arrangements with medical practitioners, and bargain with the approved societies having members in their areas as to the amount to be paid in respect of medical benefit and its cost of administration. All these negotiations had been conducted by the Ministry; insurance committees and societies were told what the arrangements made were and had to abide by them. It was admitted that collective national bargaining in these cases was inevitable, but the fact remained that the powers Parliament entrusted to committees were not and never had been performed by them. The conditions under which sanatorium benefit was for a time administered by insurance committees were always extremely unsatisfactory, necessarily so at the commencement of such a scheme. In spite of the limitation imposed by regulations, by want of funds, and the clashing of their powers and duties with those possessed by other local authorities, these committees performed a great work, which involved substantial responsibility for policy, and gave to the members scope for real capacity as administrators. The confusion and anomalies for which the committees were not responsible led to an amendment of the Act, and sanatorium benefit had ceased to exist. Since May, 1921, the administration of sanatorium benefit had not been a duty of insurance committees.

The temporary scheme for the administration of the benefits for deposit contributors was to last until January, 1915, a date now extended to December, 1924. No one was satisfied with this part of the scheme, and insurance committees were not proud of what they do or could not do for deposit contributors. Certain additional benefits of the nature of medical benefit (dental and optical treatment, hospital or convalescent home treatment, provision of appliances) had been provided for a portion of the insured persons. The popularity of these additional benefits had led to several suggestions for extension to include massage, radiant heat and electrical treatment, specialist treatment generally, brine baths, and laboratory facilities. The benefits provided had been administered by approved societies notwithstanding that the Act imposed the duty upon insurance committees. No additional benefits had been administered by insurance committees.

Powers Vested in the Insurance Committees.

The President then went on to emphasise the fact that the Government in promoting the National Insurance Bill of 1911 urged in its favour not only its insurance features and the provision made for the treatment of disease, but emphasised the provisions in the Bill for reducing sickness and disablement by removing their preventable causes.

An authority had made the following remarks immediately after the Act was passed:

> "The National Insurance Act will compel public attention in a manner not previously realised to the cost of the nation, not only in human lives, but in money, of bad housing, wretched conditions of employment, defective water-supply, and the like. . . . Local authorities are at times slow to effect improvements, which frequently mean a large expenditure of public money, often in an area which has already borrowed largely for municipal undertakings. But that this remissness has an appalling effect on the sick-rate of the inhabitants cannot be denied. There has accordingly been inserted in the Act a section (Sec. 63) empowering Approved Societies and Insurance Committees to demand inquiries into the causes of excessive sickness in the areas for which they are administering the Act."

Mr. Lloyd George, in the Second Reading debate (May 4th, 1911) said:

> "There will be a further power. If a county health committee are anxious to spend more money than they have funds at their disposal upon either the medical side or the sanatoria side, the county councils have power to agree to sanction further expenditure, provided the Treasury also agree. One-half the additional expenditure will come out of the rates, and the other half out of the Treasury. There are one or two other functions, to which I attach great importance, which the county health committees will have to discharge. They will have to consider generally the needs of the county and borough with regard to all questions of public health, and to make such reports and recommendations in regard thereto as they may deem fit. I shall point out later on that they have power beyond that of merely making reports and recommendations. . . . They will have power also to make provision for the giving of lectures and the publication of information on questions relating to health. . . . What we propose is that the county health committees shall have power to go to the Local Government Board whenever there is excessive sickness coming on the funds of the society, and apply for an inquiry into the cause of that sickness. Wherever the Commissioners of the Local Government Board find that it is due to neglect by the authority to discharge functions imposed by an Act of Parliament for the housing of the people, or for improved sanitation, they shall have the power of imposing that excess, not on the societies, who are not at fault, but upon the local authorities who are at fault. That will be a much more effective check than the old obsolete form of mandamus."

Lord Haldane, as spokesman for the Government in the Second Reading debate in the Lords, said:

> "We hope to get a committee that will settle the multitude of questions which will arise and which will vary from locality to locality, questions with which the Insurance Commissioners could not themselves adequately deal. The functions of the local insurance committees will be to report on health. That is the great thing. They will furnish statistics not only about abnormal but about normal conditions, such as we do not possess at the present time, and this ought to be of great value in combating disease."

Great promises were thus held out of the improvement in the health of the community to result from the passing of the Bill.

The executive of the association had expressed the opinion that whatever might be said about the working of this scheme in the direction of insurance and treatment, the other promises had not been fulfilled. Again, referring to the special health powers of the local committees, Mr. Lloyd George in the Committee stage said:

> "There is no proposal here to interfere with local authorities in any way, except that which is already enshrined, or, I think, embalmed is a better word, in Acts of Parliament, because most of them are mummies. They are not exercised, there is no life in them; they are pure dust, and they only have the form and features of life. There is none of the spirit and the soul in any of these powers. That is the reason why we propose that we should have some powers of this kind, in order not to interfere with local authorities, but I accept the word of the hon. Member (Mr. Harwood) to wind them up."

Sir William Glyn-Jones went on to say that he agreed that these words fairly described in 1911 the existing powers to which Mr. Lloyd George referred, but now, in 1923, the words equally applied, after 12 years, to the new powers and duties which as the result of that advocacy were conferred upon insurance committees by the Insurance Act. Whilst imputing neither motive nor intention, he asserted that insurance committees could be in no worse position had it been the deliberate policy to blanket them and by regulation to deprive them of all the power and responsibility given them by the Statute, and to leave them with such a modicum of routine duties as to justify their being put to as peaceful and painless an end as possible.

In conclusion, Sir William Glyn-Jones said: "I make all allowance for the war and its aftermath. Of course, the war inevitably gave to our work a great set-back, and it is a pity that the recuperative powers of social reform are not equal to those apparently possessed by football, racing, boxing, motoring, and other doubtless innocent but less profitable objects of expenditure of thought, time, and money, which appear to have regained their pre-war prosperity. That fact notwithstanding, we cannot be accused of unreasonable impatience if, five years after the Armistice, we ask the Government if and when insurance committees are to perform the duties for which they were created. The present position of insurance committees is one in which they cannot with self-respect continue. Does the Government think the work outlined for us should be abandoned, or that we are not the bodies to perform it? In either case let us and the country know. We cannot with self-respect continue to be parties to a sham fight against the evils which we were enrolled with such a flourish of trumpets and beating of drum to combat." The outgoing executive committee had directed attention to this aspect of the work of insurance committees, and he asked the conference to give a mandate to the executive they had just appointed to force the issue.

THE SILENT MILK-CAN.

MUCH of city or town life is only rendered possible by the development of a degree of insensitiveness to the uproar of civilisation about us. Even so, there remain individual sounds which never fail to torture some more sensitive ear. Schopenhauer, if we remember rightly, was infuriated by the cracking of cabmen's whips, and had not Carlyle a sound-proof study? At the present time many of those whose windows overlook crowded London thoroughfares must sometimes wish that a certain street vendor was, in the words of his own reiterated stave, "far, far away." And there must be a considerable daily aggregate of nervous irritation engendered in station hotels, waiting-rooms, and similar places, by the bump and clatter of milk-cans rolled along echoing platforms and hurled into or out of trains. To mitigate this last-named nuisance has been the aim of Mr. Arthur S. F. Robinson, of Barsham, Beccles. By means of rubber tyres set round the heads and bases, and rubber covers upon the handles, of milk-cans—or, as they are now commonly called, milk-churns—he has rendered the movement of these receptacles practically silent. Mr. Robinson has patented a new form of sealed churn, lighter than the type usually seen and heard, slightly shorter—since "splashing space" is not required—and fitted with silencing rubber. This churn will, it is claimed, benefit traders, railway companies, and the general public by eliminating not only the porter's nerve-shattering "tintamarre," but also the wastage of milk in transit, and the contamination which must take place when the lids of churns are not hermetically sealed.

A WARNING.

To the Editor of THE LANCET.

SIR,—A young man going under the name of Joyce or MacNamee is calling on Irish doctors, clergy, and laity in the Midlands to dispose of a book by S. MacManus, "The Story of the Irish Race." He gives a receipt for £1 2*s*., but the book does not arrive. He has, I understand, no connexion with the O'Molloy Publishing Co., Donegal, who market this book, and is at present in the Nottingham district.

I am, Sir, yours faithfully,

Nottingham. M. J. HORGAN, M.B.

MADEIRA, THE CANARY ISLANDS, AND THE AZORES.[1]

THE twelfth edition of Mr. A. Samler Brown's standard guide to Madeira, the Canary Islands, and the Azores contains 496 pages packed with information ranging from legends of lost Atlantis to the proper prices to pay for hiring a mule and the way to estimate the distance of the horizon. The medical interest of the volume is underlined by a Chapter for Invalids, which contains valuable advice to those who seek to regain their health in these resorts. Invalids in an advanced stage of illness are cautioned against visiting the islands alone, or are advised to place themselves under close medical supervision, since they "are too apt to imagine that the mere change of climate permits them to take liberties with their strength and stomach such as they would never dream of in Europe. Elated and excited by the charm of a nearly constant sunshine and of a temperature which permits them to be out at almost any hour of the day, they . . . presume on the increase of vigour common after a sea voyage, and, acting in an imprudent manner, frequently so accelerate the ravages of the disease from which they suffer, that they never recover, being subsequently cited as examples of the insalubrity or inefficiency of the climate." The variety of choice of climate and elevation in the different islands renders care necessary in the placing of a patient, otherwise, of course, this variety is a great addition to the value of the resorts. The chapter closes with notes on climatic diarrhœa and sea-sickness.

The guide contains new matter which includes meteorological statistics compiled at an elevation of 7000 to 7500 feet above sea-level, in the Cañadas (the crater valley lying around the Peak) of Teneriffe, where it is proposed to build a sanatorium above the Summer Trade Wind Zone. The volume is excellently illustrated with views and maps, and there are many statistical tables.

THE "PRANA" CARBON-DIOXIDE SNOW APPARATUS.

Sparklets Limited, Upper Edmonton, London, N. 18, have submitted for our inspection and trial a portable and satisfactory apparatus for making carbon snow pencils. It consists of a perforated metal cylinder about 3 inches long by 2 inches in diameter, to one end of which is affixed a vulcanite cone terminating in a tube closed at the end with a screw-cap. The other end of the cylinder is connected with a tube containing CO_2 under pressure. By means of a valve the CO_2 is allowed to flow into the cylinder at short intervals, and the snow formed in the cylinder is afterwards compressed in the exit tube by means of a vulcanite rod. The cap is then removed and the CO_2 pencil pushed through. The moulding tubes are made with both round and square sections. With a little practice the apparatus is easy to manipulate. The price is 3½ guineas, and the cost of refilling the CO_2 container is 2*s*. Other sizes are made for use in hospitals and surgeries.

NON-REGISTRABLE MEDICAL DEGREES ON PANEL LISTS.

To the Editor of THE LANCET.

SIR,—For the last nine years the degrees of British and colonial graduates holding foreign degrees have appeared in all the printed lists of practitioners who have consented to carry out the duties of the National Health Insurance. However, in March, 1923, without any notice, all these degrees were removed from the lists, because they were not at present on the Medical Register. As the general public attach great importance to an M.D. degree, this action of the Ministry of Health and of the London Insurance Committee has caused a great loss to these practitioners, by reason of the fact that any additional mark of academic distinction is duly taken into consideration by insured patients of all classes in choosing a doctor. In thus depriving these graduates of a necessary advertisement, someone connected with the Ministry of Health has been responsible for an exhibition of professional prejudice which may have far-reaching consequences. With regard to the graduates of the University of Brussels, we are now about 1000 strong in all parts of the British Empire, and I shall therefore be glad to hear from any graduate of this, or any other foreign university, with a view to combined action.

I am, Sir, yours faithfully,

ARTHUR HAYDON, M.D.,
Hon. Secretary, The Brussels Medical Graduates' Association.

41, Buckland-crescent, N.W. 3.

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[1] Brown's Madeira, Canary Islands, and Azores. Twelfth edition, 1922. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 7*s*. 6*d*.

The Principles of
SYMPTOMATOLOGY:
AN INTRODUCTION TO A NEW OUTLOOK IN MEDICINE.

By Sir JAMES MACKENZIE, M.D. Edin.,
F.R.C.P. Lond., F.R.S.

(*From the St. Andrews Institute of Clinical Research.**)

In Three Parts.—Part I.

A survey of medical knowledge reveals defects in fields essential for the progress of medicine and for its intelligent practice. The chief of these defects is in the knowledge of what constitutes ill-health, and of the conditions that lead to death. The phenomena by which ill-health is recognised are the symptoms of disease.

The symptoms of disease are produced by organs whose functions are stimulated to unusual activity, or are depressed, or are suspended. Death is the result of the suspension of the activity of certain organs. The functional activity of organs is dependent on the cells peculiar to the organ and on nerves or other structures that regulate the functional activity. These parts can be represented by a reflex arc in which impulses taken up by a receptor are conveyed by afferent and efferent nerve fibres to the effector organ. The value of the principle of the reflex arc is dependent on the fact that symptoms are produced by disturbances of one or more of the elements of which the arc is composed. The recognition of this principle compels an analysis to find at what element of the arc any given disturbance takes place. The attempt to apply this principle to the interpretation of symptoms has revealed that the nature of the regulating process is not known for any of the organs. The chief reason for this is found to lie in the absence of knowledge of the afferent system of nerves, particularly of the autonomic system, and of the manner in which impulses are generated. Drugs and poisons act like the agents of disease, and the application of the principle of the reflex arc is necessary for understanding the action of remedies.

1. The Problem of Ill-health.

While fully recognising the great additions that are being made to medical knowledge in recent years, and while appreciating the benefits which the application of the knowledge has conferred on the practice of medicine, yet we must not shut our eyes to fields which are practically unrecognised, but which are essential to the progress of medicine. The ardent investigator should ever be more ready to analyse his failures than to contemplate his success, and if we take a wide outlook on medicine, we shall have little difficulty in detecting failures. If a survey be taken of modern medicine, the remarkable fact comes clearly out that, notwithstanding the widespread interest in medical research, the most obvious of all problems whose solution is necessary for the rational practice of medicine remains practically untouched.

Every patient who consults a doctor does so because he feels ill, yet if we ask what is ill-health, or what is the nature of the phenomena of ill-health, we shall ask in vain, for nowhere is there to be found an understanding of the nature of the simplest phenomenon of this kind. In a vague sort of way attempts have been made to understand the nature of ill-health and of the changes that lead to death. At one time pathology was expected to give this kind of knowledge, but it has failed. The reason for this failure will be grasped when it is realised that the phenomena of ill-health and death are due to the disturbance and cessation of active living processes, and that neither the post-mortem examination nor the microscopic examination of damaged organs can reveal these processes. It was expected that bacteriology would supply this kind of knowledge, but while it may reveal an agent which provokes ill-health, it throws no light upon how that agent produces ill-health. Methods of investigation are being borrowed from other sciences, but although chemical analyses, the X rays, the electro-cardiograph, and other devices may be adapted for clinical investigation, and although they have proved of value, they fall short of expectation for the simple reason that while they may reveal the result of disease they do not reveal the process which is concerned in its production.

Common Diseases.

The hampering effect of the absence of this kind of knowledge upon medical progress and practice is seen in many fields. Crusades and campaigns are being organised against diseases whose effect upon the body is not understood beyond the fact that ill-health and death result. Manifestly, if we are to combat a danger we must know the nature of the danger, and while we know that tuberculosis, cancer, and heart disease produce ill-health and death, we do not know how they do it. When an enterprise is undertaken which requires a certain kind of knowledge, and it is assumed that this knowledge exists when it does not exist, it does not require the gift of prophecy to foretell the end of such an enterprise. It is for this reason that the path of medicine is strewn with enterprises that have failed.

Articles and speeches, depicting the progress of medicine in glowing terms are becoming stereotyped with constant references to certain successes, particularly in tropical diseases. If more attention were directed to the common diseases that afflict the people in this country a better perspective of the progress of medicine would be obtained. If the present state of knowledge and practice regarding these diseases be compared with the state when I entered practice 45 years ago there is some difficulty in recognising where progress has been made. Occasionally new methods of diagnosis may bring to light signs that before could not be detected. We may find a new remedy used to relieve distress, and many new surgical operations performed which were not done then, but if we look at the mass of people in ill-health, only a minute percentage have gained benefit. The so-called minor ailments, some of which are the beginnings of serious ill-health, the numerous digestive troubles which do so much to impair health, are just as common and as little understood now as then, and we are just as helpless in face of the grave acute illnesses.

Classification of Disease.

A good conception of the lack of progress can be gained from the perusal of the index of diseases which numerous learned bodies issue from time to time. The study of such books reveals the total absence of any system of classification of the slightest value. Time and again attempts have been made to classify diseases on some logical basis, and all have failed, simply because a knowledge of disease adequate for the purpose does not exist. We sometimes find the " cause " used for a logical classification, but as in the vast majority of cases of ill-health the cause is unknown, the basis has to be mainly guessing—that is to say, the logical classification has to start with what is bound often to be a false premise—and we know where that leads. Again, we find morbid anatomy used as a basis for classification, but here again failure is bound to result, for the diseased organ is the result of those processes which caused ill-health and death, and we know so little of these that it is not possible to recognise the connexion between them and the diseased organ.

All attempts to classify common ailments or diseases have resulted in a nomenclature where signs and symptoms, morbid structures, and fanciful diagnoses, and even physiological manifestations, are mixed together in hopeless confusion. This, again, is because the nature of ill-health is not understood.

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* The material for these articles was obtained from observations in which every member of the Institute participated. Part of the expenses incurred was contributed by the Medical Research Council and the Carnegie Trust.

Nature of Ill-health.

An essential problem in the practice of medicine in dealing with a sick person is to know what it is that makes him ill and why he dies. To say that he has a pneumonia, or that he is infected by the pneumococcus microbe is quite true, but that is not enough. The microbe may be the agent and the inflamed lung one of the results, but they do not tell us why he is ill. The doctor is called in because he is supposed to have the knowledge and to be able to use remedies to combat the illness; this he cannot do, for he does not know the nature of the illness. One doctor may fancy the lung needs treatment, and applies a poultice to the chest; another that the heart is "failing" and gives remedies for the heart; and a third that the blood is not sufficiently aerated, and prescribes oxygen; while another attacks the ill-health with a vaccine, and so forth—no one really knowing what to treat. A simpler example of this defective knowledge is illustrated in cases of poisoning. No pharmacologist or toxicologist can tell us the action of a poison like arsenic in causing ill-health and death.

Pain.

This defect in our knowledge will be even more fully realised if we consider how little we know of the most clamant and universal, and if we understood it, probably the most instructive of all the phenomena of ill-health—pain. We can reason that pain originates from impulses sent out by the cells of an organ or tissue whose normal condition is disturbed, that these impulses are taken up by certain nerves, and transmitted to the central nervous system, where they produce the sensation of pain, and the sensorium refers the pain to some part of the body. But if we ask what tissues are capable of producing these impulses, what nerves receive these impulses, what morbid states underly their production, and how comes it that the pain is referred to places sometimes remote from the organ or tissue whose disturbance gives rise to the impulse—such questions cannot be answered, except by guesses. What is true of pain is practically true of every other symptom, whether it is a sensation experienced by the patient or a sign perceived by the unaided sense of the experienced observer or detected by the aid of some mechanical device.

Records.

A great deal of time and labour is spent on getting records, and an enormous mass has been accumulated. Everyone recognises that they should be of inestimable value, but somehow or other the good results are never commensurate either with expectations or with the labour spent. If one asks a physician or surgeon what use he makes of the records of his predecessors, who it may be, for a quarter of a century, had been piling them up, he will reply that nobody ever looks at them! This fact has been recognised, and strenuous attempts are being made to remedy this state of affairs. But there is little prospect of success so long as we remain ignorant of the phenomena of ill-health. The most favoured method to-day is to have each patient examined by a great many specialists. Each specialist may find something wrong, and all their findings are carefully recorded. But such records are of little help, as they do not tell us the outcome of the complaint. This is recognised in some quarters, and the patients are to be "followed up." But what is it that should be watched in the following up, and which of the specialists is to do it? The object is to note the modification in the symptoms with the progress of the disease, but in the present state of knowledge of the nature of symptoms, only a very imperfect or useless record can be kept.

Again, such records start long after the onset of the complaint, and little understanding of how the present state was reached can be found. This has been recognised, and hospital physicians are spending their time in the out-patient department. But, as they have been educated only to recognise the "physical signs" of disease, which are often produced when the disease has done damage to the organ, there is little prospect at present of success, seeing that in the early stages of disease there are often no physical signs. Before there is any prospect of success there must be a far better understanding of those symptoms by which ill-health is recognised.

The significance of this will be understood if we keep clearly in our mind the main objects of records which are, to record the symptoms which will enabl a diagnosis and a prognosis to be made. Th symptoms for these purposes are not necessarily th same. When a patient is ill he is not so much concerned with the name of his complaint, as whether h is to get well or not. The symptoms by which w recognise scarlet or typhoid fever are not those b which we can give a prognosis. Moreover, th knowledge of whether he is to do well or ill forms th basis of a rational treatment. To put the matter i another way, we may find in a patient some definit sign as a heart murmur, pleuritic friction, spitting o blood, and it is necessary to assess their value—t find out what relation they have to the patient' future health. To give statistics that a certai percentage of people with murmurs die or that certain percentage of consumptives have suffered fro pleurisy or hæmoptysis may be true, but they do no tell us what is to happen to any particular individua When a person is in ill-health there is always presen a number of symptoms, some of which afford th means of diagnosis, but it is the nature and kind o the symptom which determine the prognosis. Th aphorism that no grave prognosis in heart affection should be based upon the presence of only one sig holds good for practically all other organs. Record ought to give this kind of information, but they wi never do it while symptoms are neglected, and unt this is remedied the keeping of records will continu to be of little value.

Treatment.

A further evidence of the hampering effect of th lack of knowledge of ill-health is seen in treatmen If treatment is ever to become rational and intelligen it is necessary to know the condition we want to trea As the condition is invariably made manifest b certain signs or symptoms—that is, by the phenomen of ill-health—we must know what these are and ho they are produced, but while we are ignorant of the nature our treatment is bound to be haphazard an empiric. It is necessary to know how our remedi act. While we may recognise that they do act, it seldom that we have any clear idea of how they ac We know castor oil may relieve constipation, but w know as little about the manner of its action as we d of the nature of constipation. In recent years portentous list of new remedies has been introduce under imposing titles, as vaccine therapy, seru therapy, chemotherapy, psychotherapy, vitami therapy, endocrine therapy, substitution therapy, & While each is claimed to give good results, no perso has a real knowledge of the action of the vario remedies, and we are therefore driven to speculati for an explanation. Hence the principles of mode therapy are the same as those which have been in u from time immemorial—the giving of a remedy who action we do not understand for a condition of who nature we are ignorant. If this is grasped it will seen that there is no prospect of a truly scienti principle being evolved until we understand the natu of the phenomena which we wish to treat.

We might present the subject in another way. W frequently meet with people in ill-health who have ha all their teeth removed, because the doctor thoug that in some way the teeth caused the ill-health, b who have gained no benefit from the removal. It known that adenoids may result in ill-health in so people, but in the vast majority of people they have ill-effect—yet the fashion of to-day is to remove the Appendicitis causes ill-health and death in so people, and great numbers of people have the appendixes removed, with no benefit to their healt Surgical literature will be searched in vain for knowledge of the nature of the symptoms of appe dicitis, or the manner in which they are produced, while no description is given of those phenomena which would guide to understanding the danger, or absence of danger. Large numbers of perfectly healthy people are rejected for life insurance, and for entrance into the Services, have their lives restricted, and are subjected to various forms of treatment, because some sign as a murmur or an irregularity of the heart is detected. Modern medicine is developing along new lines, in which numbers of specialists are combining to make a more thorough examination of each patient. That each specialist may frequently find symptoms belonging to his special department is to be expected, seeing that in a sick man every organ may be disturbed. But if each or all of them is asked what is the nature of the ill-health which is provoked by the disturbance, no clear information can be obtained. That does not mean that each specialist may not do good by his treatment, or that such a combination may not be successful, but the point is that there is not that knowledge which enables the specialist to understand the relation of the disturbance which he detects with ill-health, and in consequence of the absence of this knowledge he is forced to treat patients whose sufferings cannot be relieved on the same lines as those who can be relieved.

Specialism.

Did space permit it might be profitable to discuss the reason for the neglect of such an important field of knowledge—it suffices here to point out that it is in a great measure the outcome of specialism. Medicine has become so large that it is necessary for men to limit themselves to special fields. On this there follows the danger inseparable from specialism in all spheres, the inability to see the whole field, with the result that each investigator is so engrossed in his own narrow sphere that he does not recognise that other fields as important, or even more important than his own, are being neglected. A man with a limited experience is likely to be a man with a narrow outlook. It is worth while to note that with few exceptions (as specialists in venereal diseases) specialists have no opportunity for seeing patients in the early stages of the disease in which they specialise, and as a consequence the early stages of the vast majority of diseases cannot be recognised.

Many examples of the evil effects of specialism in the practice of medicine could be cited, and the following may be taken as an example. A problem which is ever cropping up in general practice is how to deal with patients with affections of the heart who become pregnant. A perusal of recent obstetric books shows that the writers have so imperfect a knowledge of this subject that their opinions are of little value. The heart specialist has never had the opportunity of studying the effect of pregnancy in either the normal or diseased heart. The absence of this kind of knowledge often has calamitous results.

The Laws Governing the Production of Phenomena.

The living body is composed of organs which are continually being exposed to impulses from without and from within, to which the organs react. The agents which are capable of originating such impulses and the reactions they produce are infinite in number. As a great deal of medical investigation is concerned with these reactions, there is no limit to the number of methods that may be devised to produce them or to detect them. So long as research is content with the mere accumulating of new facts of this kind little progress can be expected, though occasionally out of the great mass some facts of value may be discovered, and such discoveries are supposed to justify these procedures.

Looking at the matter in this light, the prospects of achieving the great aims of medicine are not hopeful, and the question arises: Is there not a better way? To find an answer it is worth while to consider how other subjects dealing with natural phenomena have made progress. Such subjects as chemistry, physics, botany are making great strides, and if we inquire into the reason it will be found that in their early history they were in the state that medicine is in at present, in that a great mass of detail was accumulated, but so confused that it was not possible to understand its significance. In course of time the need for a classification based upon rational grounds was recognised, and in each case this was found in the discovery of certain "laws" which enabled the mass of details to be classified according to their affinity in nature.

The phenomena produced in the living body in health and disease are natural phenomena, and are thus subject to definite laws. There is no prospect of understanding the phenomena which research is revealing every day until the mass of details is classified according to their affinity in nature, and this cannot be done until the laws that underlie the production of these phenomena are discovered.

The subjects just mentioned were not really entitled to be considered as sciences until the laws which governed the production of their phenomena were recognised. After that the subjects became not only easier of comprehension, but a guide was given which has led on to continuous progress. The want of knowledge of such laws is one reason for medicine's unprogressive position, and there is little prospect of material progress until they are discovered. Such is the conception which influences our work in St. Andrews. No one recognises the difficulties more than we do, and we put forward here some of our attempts knowing them to be—like all first steps—halting and uncertain.

2. THE NEW OUTLOOK.

The recognition that there is an urgent need for a new outlook in medicine is not the result of a superficial view or of a hasty survey. It is 44 years since I entered upon the practice of medicine as a general practitioner. After a few years it gradually dawned upon me that I was profoundly ignorant of the nature of the complaints for which I was consulted. If a patient had a pain I might be able to give relief, but when I asked myself how was the pain produced and how my remedy acted, I had to admit I did not know. When I detected in a patient a murmur in the heart, or an irregularity in its action, I looked upon these as signs of serious significance and proceeded to treat them according to the fashion of the day. But when I asked myself in what way they indicated danger I could not tell. The same blank ignorance faced me when I looked closely into nearly every form of complaint—whether trivial or serious. At first I thought my ignorance was peculiar to myself, but I soon found that neither the consultants to whom I brought my patients, nor the books I read, could give me the kind of knowledge I wanted.

I therefore resolved 40 years ago to improve my own knowledge, and for that purpose I set myself two objects—(1) to find out the nature and mechanism of individual symptoms, and (2) to find the bearing the cause of the symptom had on the patient's health in the present and in the future. From that time onward I have steadily pursued this inquiry. Needless to say, progress has been slow and difficult. One great obstacle was my profound ignorance of the manner in which the functions of the body were carried on. In striving to remove this ignorance, I discovered that the knowledge essential to the attainment of my object in many instances did not exist, and I had to devise measures to get this knowledge. Many were the failures, but gradually a measure of success was achieved. I kept reviewing the steps I had taken, and studied the reasons of success to find the reason for the failures, till I finally was able to understand the reason for the slow progress of medicine in dealing with the ill-health common among the people, and recognised a great field of investigation which had been neglected, but which is absolutely essential for the progress of medicine and its intelligent practice.

My experiences led me to see a possible way in which this field should be explored, and four years ago the St. Andrews Institute was started with the definite object of studying the nature of ill-health. In the first instance it was incumbent that this inquiry should be in the hands of those who had the opportunity. As the main object was to study the life-history of disease, it was necessary that the investigators should watch the disease from its onset to its finish. It was necessary, therefore, to study the history of ill-health from its onset till its termination. For this purpose it was necessary to understand the phenomena which constituted ill-health. Not only must the investigator have suitable opportunities, but he must be trained to know what to observe. As ill-health is made known only by the sensations of the patient or the detection of signs by the doctor, it was necessary to comprehend the nature of symptoms. I had long ago found that the knowledge of symptoms was so defective that there was no hope of any success till it became far fuller.

Having thus clearly recognised the need of research and envisaged our object, it was necessary to organise a method that would enable the research to be pursued in a systematic manner. The opportunities to which reference has been made of studying disease from its onset to its termination were afforded only to the general practitioner, and it was evident he must take the principal part in the investigation. Many people may have opportunities for seeing ill-health in different stages, but these avail little unless a far better knowledge of the phenomena of ill-health is obtained than at present exists. It was recognised that to obtain this knowledge a prolonged investigation would have to be made into the nature of symptoms, and for this purpose the opportunities of the general practitioner were not enough. To help in this work the professors of anatomy and physiology of the St. Andrews University, a bacteriologist, a chemist, and an expert radiologist are associated with the general practitioners. In order that we might pursue our work systematically we discussed our object and recognised that the highest aim of medicine was to prevent disease. To prevent disease it was necessary to know the circumstances that caused or favoured its onset, and to know the course it pursued from the onset to its termination.

Realising this as our object we first had to get a clear conception of what we meant by ill-health or disease.

Ill-health is commonly spoken of as "disease." We wanted a clear conception of what was meant by disease, and for our purpose we defined ill-health or disease as *the reaction of the body to a noxious agent.* The reactions of the body were what is usually understood as the symptoms of disease, or the phenomena of ill-health. The noxious agent might be, and often is, a microbe. As the agent is rarely discoverable, and as disease or ill-health is only recognised by the presence of symptoms, we found it necessary to begin our work with the study of symptoms. We found that already there had been accumulated a great mass of symptoms, and to add to that mass by discovering new symptoms would not lead to progress but the reverse. A little consideration revealed that when a man falls ill every organ may be disturbed, so that there is no limit to the number of symptoms a sick man may develop, and the search for new symptoms and the invention of new devices for that purpose and the introduction of methods from other sciences would but add to that great mass of chaotic detail which at present effectively obscures the path of progress.

The first step lay in an endeavour to reduce the mass of symptoms to order and to classify them on some definite principle, such as their affinity in nature. As all phenomena in nature are subject to definite laws, we recognised that symptoms are natural phenomena, and their production must be subject to definite laws, and we set out to find them. Symptoms, apart from those due to structural changes, were found to be due to an increased or decreased action of some organ, that is to say, to a modification of normal activity. The activity of an organ depends on two parts, one consisting of cells with a specific function and another of cells that regulate the activity of the organ. The former consists of those cells whose action gives rise to the special function of the organ, as the contraction of muscle cells, the secretion of secretory cells, the sensations produced by the cells of the sensorium (brain). The activity of these cells are regulated by nerves or other structures with the same function as nerves. By the action of these regulating nerves the organ functions according to the requirements of the body. The variation of cell activity due to these requirements, as well as the variations which result in symptoms, are dependent on these regulating nerves to a great extent. These nerves are brought into action in a particular way. The organs of the body are continually subject to a stream of impulses which enter from without (through the skin and special senses) or are produced in the body by the activity of the organs themselves. These impulses, wherever they arise, are conveyed by the nerves to the different organs and modify their functional activity.

Our inquiry in this way led us to recognise that a great many symptoms, and especially those that indicated ill-health, were due to disturbance of the mechanism or processes which regulated the function of organs. Moreover, death itself was due to the suspension of activity of organs necessary to life, and this suspension was brought about by interference with those regulating processes. As the mechanism or process which results in a modification of the functional activity of the organ involves the transmission of impulses from one organ to other organs—as from the skin to the muscle—is usually spoken of as a "reflex" or "regulating process," we put forward the theory that a great class of symptoms was produced by the disturbance of these normal processes. What is meant by this can be illustrated by the consideration of some of the organic reflexes. In this inquiry we paid a good deal of attention to those symptoms whose production could be watched and the source recognised. Of these the organic reflexes afforded the best opportunity, as in the study of uterine contraction at child-birth. Here it was noted that the slighter contractions caused few reactions. As they increased in severity the reactions increased—the heart rate increased, the face flushed, the muscles of the abdominal wall were violently contracted, the breathing was held while "bearing down," great pain was felt in a definite area, at times nausea was experienced, with a flow of saliva and vomiting. All these phenomena were distinctly related to the contraction of the uterine muscle, and there was a relation between the number of organs stimulated to increased activity and the strength of the contraction. All the phenomena described above occur as a normal event. The same phenomena can occur as a result of a morbid condition. Under normal circumstances micturition takes place in a similar manner, with, however, only a few reactions. The impulses from the bladder produce relaxation of the sphincter, and it may be a mild contraction of the muscles of the abdominal wal with a sensation produced by the urine passing over sensory parts of the urethra. If there be a stone in the bladder, towards the end of micturition the bladder is stimulated to violent contraction as in the case of the uterus, with the production of a similar set of symptoms—pain in a definite region, straining and "bearing down" and disturbance of othe organs. Defæcation is normally accompanied by a similar series of reflexes, but under abnormal circumstances, when the bowel is stimulated to violent contraction, we get a widespread disturbance of many organs, resulting not only in pain, "bearing down," but nausea, vomiting, sweating, and even syncope.

The similarity of the phenomena produced by these reflexes, normal and exaggerated, to the phenomena of bowel, renal and gall-stone colic, leaves little doubt that they are produced in the same way and indicate that the phenomena associated with the colics are due to an increased activity of norma reflexes. Based upon these observations we put forward the theory that a great mass of symptoms were produced by the disturbance of normal reflexes.[1]

Recognising that a great group of symptoms was the result of an increase or decrease of functional activity, we then inquired what was meant by stimulation and inhibition. This has led to a long and intricate inquiry and has exposed many avenues for investigation. Before these can be explored, much preliminary work of an elementary kind has to be completed, and here we indicate the lines we are pursuing at present.

3. THE PRINCIPLE OF THE REFLEX ARC.

When we had advanced so far and formulated the theory that symptoms of disease were produced by the disturbance of normal reflex processes, we were confronted with the problem of its application. Merely to formulate a theory without demonstrating ts usefulness is futile, for the proof of the validity of a theory is only to be found in its application to the solution of problems. We attempted its application n various ways. In the course of these attempts ve recognised the very obvious matter that identical symptoms appeared in a variety of ways. Vomiting, or instance, could occur from impulses arising in remote organs, as the ureter, the brain, the fauces, as well as from the stomach itself. Lachrymation ould arise from different causes. Pain might appear n the same situation from disturbance at different evels of the nervous system. Identical variations f the pulse might arise from disturbances at a number of different places.

FIG. 1.

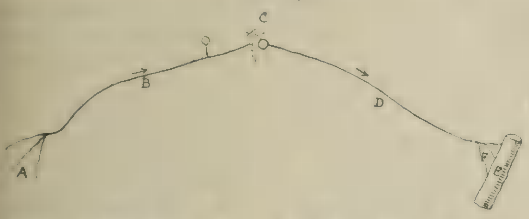

Diagram of a simple reflex arc. A, the receptor of an afferent neurone; B, C, the centre of the arc in the central nervous system; D, the efferent neurone to the effector organ; E, the arrows indicate the direction of the impulses.

As such symptoms are but the manifestation of the deranged function of the organ, it was necessary to now how the deranged function came about, and this nvolved the question of the process concerned in ncreasing or decreasing functional activity. It is manifest, therefore, that before we can appreciate he nature of a symptom we must have a knowledge f the parts concerned in regulating the function of he organ, of whose disturbed function the symptom s the evidence. This regulating mechanism consists f a chain of units (neurones) which convey impulses o the organs, and result in a modification of the unction of the organ.

The recognition of this theory compelled us to look more closely into the process itself, and to study the nits of which it was composed. In this endeavour was found impossible to recognise the part played y each unit while the organ was working in a normal manner, but it was often possible to do so when the nit ceased to function or acted in an abnormal manner. By following this line of investigation we et a knowledge not only of the mechanism which roduces some symptoms, but of the functions of rgans and structures which so far have baffled nquiry. This simple concept that the function of a art is easier to be recognised when it fails than when is acting normally is one of the principles which we nd useful in our work.

As the reflex or regulating process is built up of a eries of units the question arises, at which unit does the disturbance take place. Thus, if we represent the process by a simple diagram, as in Fig. 1, we find a number of units. There is the receptor (A) at which a stimulus is received. The stimulus is conveyed by the afferent nerve fibres (B) to the centre (C), where it is taken up by the efferent nerve (D), which conveys it to the effector organ (E), which gives a response. It is the abnormal character of the response which constitutes a symptom. Any one of the units which constitute this arc is liable to be affected by the agents of disease, so that the normal function of the unit is disturbed and an abnormal effect — i.e., a symptom—may be produced. While the typical effector organ is the muscle, yet it may be a gland, and in our view it may be the sensorium, as those organs are influenced in a similar way. Taking pain as an instance, we recognise a pain complex built up of a series of cerebro-spinal neurones. Thus there is a receptor organ A at the periphery, and the effector organ E is the sensorium (Fig. 2). When an adequate stimulus reaches any part of this complex the sensorium perceives the pain and refers it to the peripheral distribution at A. Thus a stimulus applied to the skin at A, or entering the complex at Y (as in toothache) or at Z (as in herpes zoster), the pain is referred to the peripheral distribution at A. If an adequate stimulus arises in organs (V) not supplied with cerebro-spinal nerves, but only with autonomic nerves, it is conveyed by these autonomic nerves to the central nervous system, and there affects the pain complex at C.

FIG. 2.

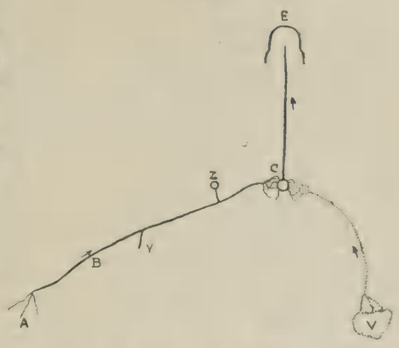

Diagram of the mechanism of pain. Impulses affect the receptor at A and are conveyed by the afferent neurone to the central nervous system, and to the sensorium E. Any impulse reaching this mechanism in any part of its course causes pain which is referred to the periphery at A. Impulses entering at Y, as in toothache, or at Z, as in herpes zoster, or at C from the viscera V produce pain which is referred to the periphery at A.

FIG. 3.

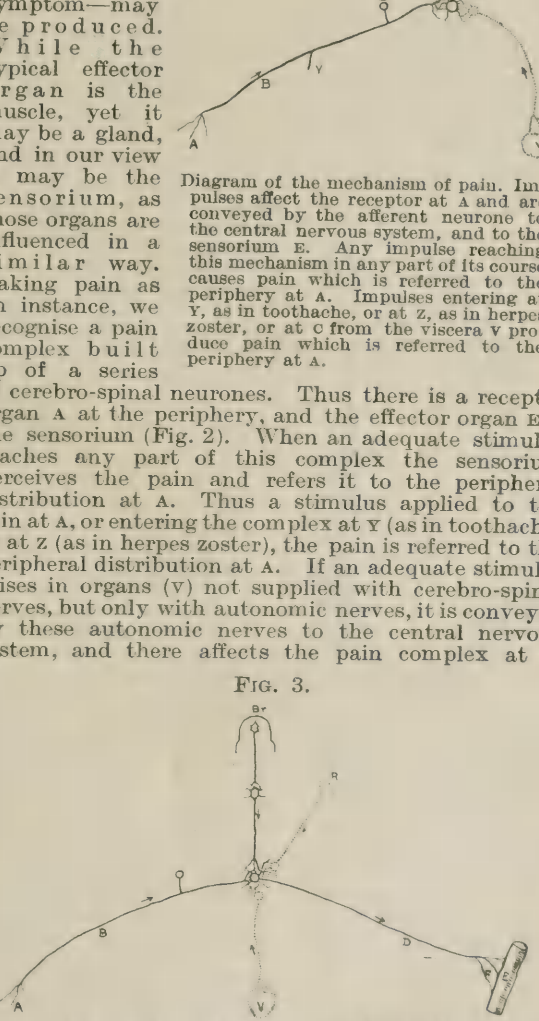

Diagram showing the different sources from which impulses may cause contraction of a voluntary muscle, E; from the brain (Br) in voluntary contraction; from the skin (A) in a cutaneous reflex; from the viscera (V) by the autonomic nerves as in visceral disease; in taking a part in organic reflexes as in respiration (R), parturition, vomiting, &c.

According to the principle of referred pain the sensorium refers this pain also to the periphery at A.

The regulating or reflex process is, however, not so simple as represented in the diagram. The connexion in the central nervous system is complicated by neurones interposed between the afferent and efferent neurones, and influences may reach and affect the arc from sources other than the periphery A. Thus, in the case where E, the effector, is a voluntary muscle, and A, the receptor, is in the skin (Fig. 3), the muscle contracts in response to a stimulus or impulse from A as in the ordinary cutaneous reflex. But the same muscle is under control of the will, so that impulses from the cortex of the brain (BR) also cause it to contract. Again, the same muscle may become rigid and hard from impulses arising in some of the viscera (V), as in the hardening of the abdominal muscles in gastric ulcer, appendicitis, &c. Voluntary muscles contract also in response to the "organic reflexes," as in respiration (R), vomiting, defæcation, &c.

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[1] The Theory of Disturbed Reflexes in the Production of ymptoms of Disease. Report of the St. Andrews Institute for linical Research, 1922, vol. i.

These complications of the process are all from parts outside the organ itself. Every organ possesses within itself structures concerned in regulating its functions. Little is known about these structures and their function, but the closer study of the matter leads to the conclusion that there are in all organs such structures, and they have a distinct purpose to serve, whose disturbance again leads to the production of symptoms. In no organ has the recognition of these structures been carried so far as in the heart, and until their discovery in recent years the problems connected with the manifestation of the heart in health and disease were incapable of solution. It may be pointed out that the recognition of the functions of the different structures has largely resulted from clinical study.

The diagram Fig. 4 shows the intrinsic regulating mechanism of the heart so far as it has been brought to light. The diagram represents two sets of structure, those concerned with the specific function and those concerned in regulating that function. The muscle wall of the auricle (A) and of the ventricle (V) represents the specific functional structures, the sino-auricular node (S.-A.N.), the auriculo-ventricular node (A.-V.N.), and bundle (A.-V.B.) represent the regulating mechanism. The stimulus for contraction arises in the S.-A. node, and, after causing a contraction of the auricle, stimulates the A.-V. node into activity. The A.-V. node then discharges impulses which are conveyed to the ventricle, which responds by a contraction.

FIG. 4.

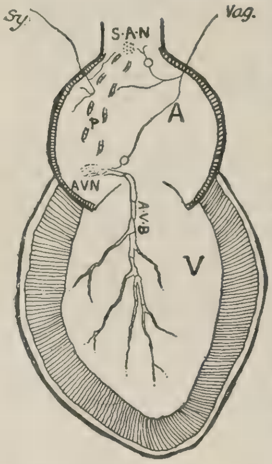

Diagram of the heart showing the parts concerned in regulating the rate and rhythm of the heart and the parts concerned in the contraction of the heart. In the former there are the sympathetic and vagus nerves, the sino-auricular node (S.-A.N.), the auriculo-ventricular node (A.-V. N.), and bundle (A.-V. B.). In the latter there is the muscular wall of the auricle (A) and of the ventricle (V).

When any agent or circumstance increases or decreases the heart-rate, with the normal rhythm, it is the S.-A. node which is being acted upon. This has to be kept in mind, for there is a tendency to assume that the rate of the heart is in some way dependent on or associated with the functional capacity of the heart. Thus the amount of increase in rate in response to effort has been taken as a measure in "exercise tests." If it be realised that the rate in response to effort is due to the susceptibility to stimulation of the S.-A. node it will be seen that the relation of rate to the functional efficiency of the heart is merely incidental. Alterations of rhythm may arise in consequence of disturbances at any unit of the regulating mechanism shown in Fig. 4. What is true of the heart is true of every other organ. There is an intrinsic mechanism in the stomach, bowel, kidney, liver, and, indeed, in every organ, including the voluntary muscles, which is barely recognised, but whose investigation is needed if we are even to understand the phenomena of ill-health.

The advantage of using the reflex arc as a guide for research is that it compels the study of the individual units of the arc, and this study brings out defects of our knowledge in a striking way, and not only brings them to light but may enable us to recognise how the defect can be made good. Each unit of the reflex is composed of a number of cells, and the question arises what part do they play individually and in combination in the performance of the normal function of the organ, and also in the production of symptoms. When it is realised that symptoms are but the evidence of an increase or decrease of functional activity, the question at once arises, how do these cells behave? This leads to further questions: What is stimulation, and what are these cells doing during periods of functional activity and during periods of quiescence? The attempt to answer these questions has led to the recognition of a very important law—the law of fluctuation—which has thrown a new light upon some features of functional activity.

THE SIMULATION OF
ACTIVE PULMONARY TUBERCULOSIS BY
PAINLESS MAXILLARY SINUSITIS.

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DURING the past 18 months my attention has bee directed to certain cases of patients, who, whil exhibiting all the symptoms of pulmonary tuberculosis were, in fact, suffering from sinusitis of such a natur that no localising symptoms were present. That man of these patients had been diagnosed as pulmonar tuberculosis was not surprising; they generall presented not only the symptoms of tuberculosis— namely, cough, often waking the patient at night morning sputum, yellow or green in colour, and ofte nummular; progressive wasting, a rise of temperatu in the evening and after exercise—but also certai physical signs in the chest due apparently to bronchitis which, while not typical of tuberculosis, are sufficien to render it extremely difficult for the physician t negative the diagnosis of pulmonary tuberculos with which the patient is sent to him, whil the fact of the absence of tubercle bacilli in th sputum does not, apparently, negative the presen of pulmonary tuberculosis.

Literature of the Subject.

Previous to the year 1916 medical literature co tained little of note in relation to this subject. I 1914 StClair Thomson,[1] discussing the complicatio of sinus disease, wrote "The same cause (nasal an sinus suppuration) often explains the inveteracy bronchorrhœa." In 1916 Rist[2] called attention the association of chronic bronchial cough with chron infection of the nasal sinuses which was frequent diagnosed as pulmonary tuberculosis. In 19 Sergent[3] corroborated Rist's statements and referr to the cases as "faux tuberculeux." He reported th an incorrect diagnosis had been made in one-third the cases of supposedly tuberculous soldiers, and th most of the mistakes occurred in the cases of m suffering from chronic bronchitis associated wi chronic infection of the nose or nasal sinuses. Bo Rist and Sergent stated that correction of the nas disease resulted in the cure of the bronchitis. 1919 Webb[4] referred to the dependence of many for of bronchiectasis and bronchitis on disease of t accessory sinuses. In 1920 Mullen and Gilbert referred to the association of nasal disease with chro bronchitis. Also Mullen and Ryder[6] reported experimental lesions of the lungs produced by inha tion of fluids from the nose and throat. In 1921 We and Gilbert[7] reviewed the literature of the subj and reported 38 cases of bronchiectasis or bronchi associated with sinus infection. In 1922 Mackey,[8] a result of a bacteriological examination of the sputum and nasal discharge in 300 cases of bronchitis, stated that there was a definite connexion between the infection of the nasal passages and the liability to bronchitis. In 1923 Dunham and Sklavhem[9] drew attention to the same subject from the point of view of X ray diagnosis of lung conditions. Also McIntyre[10] reported on 37 cases which presented pulmonary manifestations incident to infection of the nasal sinuses, some of which showed typical febrile remissions characteristic of pulmonary tuberculosis.

Nasal Protective Mechanism.

In order to make clear the condition met with in these cases of sinusitis it is necessary to refer briefly to the nasal protective mechanism. When micro-organisms contained in the inspired air pass into the nose they are caught in the mucus secreted by and covering the surface of the nasal mucous membrane, and, enveloped in mucus, are passed backwards by the action of the ciliæ of the mucous membrane into the naso-pharynx. If, owing to the numbers of the organisms reaching the nose, or to the presence of some minor abnormality within the nose of such a nature as to hamper ciliary action, the micro-organisms are not removed sufficiently quickly, the latter multiply within the nose, and the resulting increase of toxin produces a reaction in the form of a congestion of the mucous membrane succeeded by an increase of mucous secretion. If the organism continues to multiply more quickly than it can be removed, an increase in the number of mucous glands takes place. Normally this reaction is sufficient to rid the nose of the presence of micro-organisms other than those normally passing into the nose with the inspired air. If, however, there is either a dental infection of the antrum or some obstruction to the opening of the antrum into the middle meatus, the secretion of mucus continues, but its removal by the ciliated epithelium is delayed. If the micro-organisms have time to multiply to such an extent that their toxins paralyse the ciliary epithelium, the mucus and pus collect within the antrum, and the condition known as an empyema of the antrum results. If, however, the obstruction is slight no empyema is formed; the ciliæ remain active and pass the mucus with its content of toxins and micro-organisms into the middle meatus, and backwards until it reaches the naso-pharynx, from which it is passed along the posterior wall of the oro-pharynx to the pouch between the epiglottis and the tongue and to the posterior part of the larynx, where it comes to rest in the space between the arytenoids and upon the posterior surface of the arytenoids.

Now in this latter case, where the obstruction is slight and no empyema is formed, the mucous membrane of the nose, in front of the opening of the maxillary antrum, rids itself of infection and appears on examination to be normal. But the mucous membrane of the nasal passages behind the opening of the antrum and that of the pharynx shows marked reactive changes. These reactive changes are caused by the flow of pus, or mucus containing micro-organisms and toxins, acting upon the mucous membrane. It is this pus or infected mucus which, passing down the pharynx, collects in the laryngo-pharynx and in the morning is expelled by coughing. The delay in the removal of the infected mucus allows of toxic absorption and as a result in some cases wasting, evening temperature, and night sweats take place. While a condition such as that described may produce symptoms very similar to pulmonary tuberculosis and hence lead to errors of diagnosis, it may also exist in the presence of pulmonary tuberculosis. The presence of this disease, however, modifies the physical signs found in the pharynx and larynx, and the condition of sinusitis complicating a pulmonary tuberculosis is therefore separately described.

Signs of Painless Maxillary Sinusitis.

The signs met with in the form of maxillary sinusitis which is apt to cause wasting and other signs of toxæmia, in the absence of pulmonary tuberculosis, without referred pain or anterior nasal discharge are as follows: By anterior rhinoscopy, the nose generally appears normal and the airway as a rule is good on both sides. There is, however, generally some slight enlargement of the middle turbinate on the affected side. By posterior rhinoscopy, the naso-pharynx contains muco-pus or mucus in excess. The posterior end of the middle turbinate of the affected side is enlarged, its outer or meatal surface may show irregular hypertrophy, and muco-pus may commonly be seen in the posterior end of the middle meatus. The soft palate is thick, being especially thickened upon its posterior surface, where a rounded thickening takes place above the posterior surface of the uvula. The reflex sensibility of the soft palate is generally greatly increased, and cases are met with in which spontaneous vomiting occurs, ceasing after a few days' painting of the pharynx with silver nitrate. The posterior wall of the oro-pharynx is red, and shows on its surface a network of blood-vessels between which the mucous membrane is raised above the surface and of a velvety appearance. The posterior surface of the tongue shows marked hypertrophic masses, particularly in and at the sides of the glotto-epiglottidean pouch.

The laryngeal changes depend upon the position of the epiglottis, and do not occur when the epiglottis is tilted backwards so as to touch the posterior pharyngeal wall. When the epiglottis is seen in its normal situation the laryngeal changes are as follows: The whole larynx is red, the posterior surface of the arytenoids is greatly hypertrophied, and the mucous membrane of the space between them has generally hypertrophied to such an extent that the mucous membrane covering the arytenoids forms an oblong bar of red colour from which the false cords take origin. In this hypertrophied mass the movements of individual arytenoids are difficult to distinguish, while a prolongation forward of the hypertrophy is often situated centrally and renders a view of the posterior commissure difficult to obtain. The mucous membrane covering the inner surface of the trachea is red, thick, and actively secreting, while the tracheal rings are rarely seen through the mucous membrane. The tonsils in these cases are in most cases hypertrophied, and I find that on draining the affected sinus the tonsillar enlargement often disappears. The tonsil on the side of the affected sinus is practically always the larger.

The condition found in the pharynx and larynx, as a result of infection by carious teeth of the maxillary antrum, is identical with the above; that due to dental sepsis without antral infection is similar, but of less severity, and the signs observed by posterior rhinoscopy are absent. Occasionally the occurrence of sinusitis with the most advanced stage of laryngeal tuberculosis produces a somewhat similar clinical picture, but the intense redness and congestion of the larynx, coupled with the ulceration in the region of the posterior commissure of the larynx, and possibly the spread of this ulceration into one or both cords, prevent errors of diagnosis.

When pulmonary tuberculosis and sinusitis are present together the signs are considerably modified. Before describing them it is, however, necessary briefly to describe the conditions present in the nose and throat in pulmonary tuberculosis without sinusitis. Certain conditions are so regularly found in the nose and throat in patients suffering from pulmonary tuberculosis when neither laryngeal ulceration nor sinusitis are present that they must be regarded as results of this disease. There is a pallor and lack of reflex sensibility of the larynx, oro-pharynx, and laryngo-pharynx, and to a less extent of the naso-pharynx; the mucous membrane throughout is thin and lacks reaction; the larynx is pale, the arytenoids small, the inter-arytenoid space marked; the vocal cords appear thin; posteriorly in the posterior commissure the mucous membrane is white and thickened. On phonation this thickening is squeezed into a ⌒⌒ shaped protuberance of about 1 to 2 mm. in thickness. This ⌒⌒ shaped form is due apparently to fixation of the mucous membrane centrally to a median raphé. When ulceration occurs it begins, as a rule, at the bottom of this central or fixed portion.

The condition found when the above laryngeal conditions caused by pulmonary tuberculosis are complicated by the presence of a sinusitis are as follows: The pallor and lack of reflex sensibility of the mucous membrane of the palate, pharynx, and larynx are retained. The naso-pharynx contains pus or infected mucus, which is not infrequently seen under the middle turbinate of the affected side, but cannot be observed by anterior rhinoscopy, the nose appearing normal except for a pallid and thin mucous membrane. The oro-pharynx shows a network of blood-vessels, between which the mucous membrane shows a pale velvety swelling. The larynx is pale, the mucous membrane covering the arytenoids shows pallid thickening, and the inter-arytenoid space is diminished or absent. The mucous membrane of the arytenoid region tends to form an oblong bar, smaller than that met with in sinusitis without pulmonary tuberculosis, and the forward prolongation met with in that disease is more marked, and not infrequently overhangs the larynx. The mucous membrane of the trachea is thin, and the rings are plainly seen. The tonsils are small and pale; any enlargement is generally of the lower pole.

Diagnosis.

1. *Pulmonary Tuberculosis.*—The thinness, pallor, and lack of reflex sensibility of the mucous membrane, larynx, pharynx, and soft palate are so rarely absent in the earlier stages of pulmonary tuberculosis that they should be considered with the remainder of the facts in establishing a diagnosis of this complaint. The following case is instructive:—

Case 1.—Male, aged 28, admitted to sanatorium for hæmoptysis on five occasions during the last ten years. Physical signs in chest reported as slight, tubercle bacilli never found. He consulted me for enlarged tonsils, removal of which had been recommended by his doctor. Both tonsils were large and the mucous membrane of the larynx and pharynx thick and red. The balance of evidence seemed against a diagnosis of pulmonary tuberculosis; I therefore estimated the time of blood-clotting, which on three examinations on different days averaged 32 minutes. Closer investigation of history and physical signs showed the condition to be sinusitis complicating hæmophilia.

2. *Sinusitis.*—Patients with rhinitis or rhinitis with sinusitis complain of nasal obstruction; those with obstructive sinusitis complain of pain. In patients having well-marked sinusitis with only slight inflammation of the visible nasal mucosa the pus finds its way into the naso-pharynx, and thence to the laryngopharynx, from whence it is coughed up. If the degree of obstruction to the outflow of the affected sinus is slight, pain is absent; the patient is not infrequently unaware of the nasal discharge, and seeks advice for a chest condition. Diagnosis rests primarily on the presence of pus, which can be seen dropping from behind the soft palate. This flow of pus is frequently intermittent. Where a network of enlarged venules is seen on the posterior wall of the oro-pharynx a focus of infection will nearly always be found in the teeth, in the nasal passages, or in both. The chest condition cannot be regarded as connected with a nasal infection unless a history of post-nasal discharge can be elicited, or unless pus can be seen in the naso-pharynx or the posterior portion of the nose. This pus generally originates in the sinuses, but it may also be due to conditions in the naso-pharynx, such as suppurating adenoids, or to an enlargement of the visible nasal mucous membrane with an increase in number of the mucous glands. The commonest sinus infection met with in chest conditions is that of the maxillary antrum; this is frequently secondary to a dental condition. It is rare to meet with maxillary sinusitis due to dental conditions unless the nerve of the offending tooth is dead. If an abscess at the apex of the root of a tooth ruptures into the antrum, the pain in the tooth ceases as soon as the pus is no longer under pressure. When chronic post-nasal discharge is present, crowned and other dead teeth should be X rayed and, if necessary, extracted. The existence of sinusitis of the anterior group may be regarded as probable if pus can be seen by posterior rhinoscopy in the posterior part of the middle meatus, and as still more probable if pus is washed out from beneath the middle turbinate by means of liquid paraffin introduced through a ureteral catheter. If after washing out of the middle meatus pus is found on washing out of the antrum, the case is one of maxillary sinusitis; but if no pus is found in the antrum the presence of pus beneath the middle turbinate points to ethmoidal or frontal sinusitis. Frontal and anterior ethmoidal sinusitis do not complicate the diagnosis of chest conditions, because pain is always present in these conditions, and attention is early attracted to the nasal condition. Posterior ethmoidal and sphenoidal sinusitis have been met with in conjunction with infection of other sinuses, but not otherwise. The presence of pus in the superior meatus, or between the middle turbinate and the septum, suggests the diagnosis, which is confirmed by the removal of pus from the sphenoidal sinus by lavage.

Treatment.

The treatment of sinusitis without tuberculosis follows the usual lines and calls for no comment. It is becoming more generally recognised that many cases of chronic bronchitis have their origin in an infection of the accessory sinuses. The treatment of sinusitis complicating pulmonary tuberculosis involves a consideration of very complex pathological processes. Tubercle bacilli shut off from the general bloodstream in miliary tubercles produce toxins which, passing into the general circulation, cause antitoxins to be formed, and an antitoxic balance is produced. Few antibacterial substances are produced, and the tubercle bacilli continue to live, but not to multiply unless some change in their environment takes place.

Micro-organisms in the sinuses continue to multiply and secrete toxins, which being absorbed by the mucous membrane produce antitoxins, and an antitoxic balance is produced. The bacteria in the sinuses do not reach the blood-stream; hence few, if any, antibacterial substances are produced. The presence of toxins within the nasal passages produces a reaction within the mucous membrane which may remove the bacteria, but the existence of a chronic sinusitis is evidence that the bacteria have not been removed, but that they have adapted themselves to their altered environment, in which process they generally become diminished in virulence, so long as the environment is not again altered. Any alteration of environment tends to alter this virulence, and if there is for any reason an increased absorption of toxin above that against which the body is protected, it upsets not only the antitoxic balance of that micro-organism, but also that of the tuberculous infection and a flare-up of the tuberculous processes results. It is, therefore, of paramount importance to immunise the patient to a high degree against the nasal infection and guard against development of micro-organisms within the sinuses by packing these where possible with some antiseptic of prolonged action, such as iodoform emulsion. In general, patients with tuberculosis of the lungs should be operated upon under local anæsthesia, lest a bronchitis or pneumonia resulting from the inhalation of the anæsthetic activate the pulmonary tuberculosis.

Case Notes.

The following cases well illustrate the simulation by sinusitis of pulmonary tuberculosis:—

Case 2.—Male, aged 28, examined on July 17th, 1919. Area of cardiac dullness and heart sounds normal. Pulse 80–120–80 good. Lungs: Harsh breathing right apex, expiration prolonged, occasional crepitations heard. Diagnosis pulmonary tuberculosis.

On Feb. 24th, 1921, tuberculosis dispensary states "unable to work 13 weeks." On April 22nd general condition fair, tongue clean, teeth fair, heart sounds normal, pulse 72–120–84 tolerance fair: arrhythmia after exercise. Lungs: retraction both apices, dullness right, occasional crepitations right apex, a few moist sounds at both bases. Abdominal splashing. Examined at dispensary on March 6th, 1922. Weight 114 lb.; teeth bad, slight retraction apices, no definite dullness. Expiratory murmur at right upper lobe, harsh breath sounds at left upper lobe. On March 5th, 1923, weight 116 lb., heart normal, no loss of resonance, well-formed chest, no active signs of pulmonary tuberculosis.

Admitted to hospital for observation on April 19th, 1923. Complained of cough, expectoration, and giddiness. Chest emphysematous, hyper-resonant except right apex, no adventitious sounds, urine normal, weight in clothes 113 lb. Sputum 11 times negative for tubercle bacilli, complement-fixation test positive, Wassermann reaction negative. X ray screen; lungs clear up well, diaphragm excursion 1½ each side. Plate, nothing of note detected. Physician reported: "I cannot find any evidence of pulmonary tuberculosis." Laryngologist reported: Right maxillary sinusitis with laryngeal and tracheal changes secondary to this." Sputum examined microscopically showed many epithelial cells and polymorphonuclear leucocytes. Exercise temperature tested daily for three weeks rose at times to 99°; pulse, on one occasion 90, averaged 70.

CASE 3.—Male, aged 32, examined on Feb. 23rd, 1918. Chest flattened, apices shrunken, impaired resonance, roughened breathing right apex, marked venous hum at root. Husky voice, occasional night sweats; vocal fremitus increased over right apex; has lost 2 st. in weight. Diagnosis, pulmonary tuberculosis.

On Oct. 14th slight sticky rhonchus heard at right apex behind. Chest: expansion 32½–35. Weight 146 lb.; stated, "No cough or sputum." On August 9th, 1919, patient felt about the same; well-nourished, healthy, weight 152 lb. stripped; expansion 32½–35½, right less than left; flattening below both clavicles. No physical signs of active disease. Vocal resonance increased right apex. Diagnosis, pulmonary tuberculosis (quiescent). On Sept. 28th, 1920, stated "about the same"; much cough and phlegm, no blood. Chest expansion 2 inches; flattening both apices. Percussion normal both apices. Bronchial breath sounds left apex. Râles and rhonchi numerous left apex. Heart and nerves normal. On August 18th, 1921, fat and flabby. Lungs: Marked flattening both apices. Expansion 2¼. Percussion note dull, both apices and right base. Breath sounds harsh, no adventitious sounds. Heart nil. Pulse-rate 84; nervous system nil, except tremor of hands. On Sept. 10th, 1922, stated "about the same." Still very fat and flabby. Pulse weak but regular. Right apex percussion note dull. Breath sounds harsh. Breath sounds weak behind in right lung. Right lung, movement less than left. Fine wheezing at right apex, left lung, heart, and nerves nil.

On March 21st, 1923, admitted to hospital for observation. Complained of breathlessness after exertion, slight cough, and frothy phlegm. Heavily-built, chest wall thick. No adventitious sounds or abnormal physical signs detected in chest. Urine normal. Weight 190 lb. in clothes. Average temperature, A.M. 97·2°, P.M. 98·2°; average post-exercise temperature 98·4°; average post-exercise pulse 78. Tubercle bacilli absent. Complement-fixation test negative, Wassermann reaction negative. X ray report: Screen, lungs clear up well; diaphragm excursion right 2½, left 2. Plate showed nothing of note. Physician reported: "I cannot find any evidence of pulmonary tuberculosis." Laryngologist reported: "The nose, naso-pharynx, and larynx show changes secondary to the left maxillary sinusitis which is present, also ? right maxillary sinusitis."

Patient discharged from hospital on the same day.

Prognosis.

From the examination of something over 100 cases of tuberculosis without sinusitis, and about the same number of cases of tuberculosis with sinusitis, I am convinced that from the above signs no conclusion can be drawn as to the activity of the pulmonary tuberculosis. I have reached this conclusion on account of two classes of case—one in which pulmonary tuberculosis had been apparently inactive for periods varying between two and four years, sinusitis not being present, but in which the pallor and lack of reflex sensibility were still marked; the other in which pulmonary tuberculosis as judged by physical signs, absence of tubercle bacilli, &c., was inactive, but in which an active sinusitis was present and loss of weight continued. The condition of a sinusitis without pulmonary tuberculosis gives rise to bronchitis. To what extent such a condition, when active for several years, can shorten life is in the present absence of statistics a matter of surmise only. In general the observations I have made point to a continuance of the condition, with resultant damage to the bronchial mucous membrane of more or less severity, until other factors increase the acuteness of the sinusitis and cause pain and nasal discharge, thus revealing the cause of what has previously been treated as an affection originating in the chest.

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THE INCIDENCE OF MALIGNANT DISEASE IN THE APPARENTLY BENIGN ENLARGEMENT OF THE PROSTATE.*

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I WOULD like at the onset to make a clear definition of the point that I wish to raise; I wish to discuss, not those cases of prostatic enlargement which are obviously carcinomatous or even suspicious of carcinoma when they first come under the notice of the surgeon, but rather those cases which clinically present all the features of the ordinary simple prostatic enlargement, and which are operated upon as such, but in which, owing to some unusual feature in the operation or on subsequent microscopical examination of the organ removed, malignant disease is found as an unsuspected complication. Four such cases have recently come under my observation, and I therefore bring the subject forward for consideration in the hope that some points which have escaped me may be elucidated and may assist in correct diagnosis before operation is advised.

Thus I eliminate at once those cases of alteration in micturition with difficulty, frequency, and perhaps hæmaturia which on rectal examination present a firm, inelastic or nodular swelling of the prostate, with fixation or lateral infiltration in the pelvic lymphatic areas, and confine myself to those cases in which the digital examination of the prostate per rectum shows a soft, elastic, movable enlargement of the gland of uniform consistence, which has been looked upon as the type of enlargement variously spoken of as adenomatous, cystic adenoma, hyperplasia, or as chronic lobular prostatitis.

Case Records.

Perhaps it would be best at this stage to give a brief note of the cases upon which my remarks are based:—

CASE 1.—The patient, aged 75, commenced to have trouble with increasing frequency of micturition about five years ago, progressing gradually until it amounted to every hour by day and about five times at night, with occasional involuntary dribble. He had to strain to micturate, but there was no pain, no backache, and no increased thirst. No hæmaturia.

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* A paper read at the Urological Section of the Royal Society of Medicine, May 31st, 1923.

Condition on Examination.—A rather feeble old gentleman. Pulse 76, vessels slightly thickened. Blood pressure 160 mm. Neither kidney nor liver was palpable; bladder was not felt distended. Urine passed in forceless dribble, clear, acid, sp. gr. 1021, no albumin or sugar. Urea 2·3 per cent. Catheter passed easily; residual urine 3½ oz. Per rectum, prostate uniformly enlarged, smooth, elastic, and movable. Easily felt bimanually.

Operation.—On July 20th, 1921. The prostate projected into the bladder as an apple-like swelling, smooth, and elastic. Enucleation was easy, though there was some increased fixation in the posterior part of the gland. On subsequent examination with the patient in the Trendelenburg position and the cavity illuminated, two small firm nodules were found in the posterior part of the prostatic cavity and were removed.

The prostate removed appeared to be of the ordinary fibro-adenomatous type, but it was rather ragged on the posterior aspect. On microscopic examination of this portion of the gland, and also of the small nodules removed from the posterior part of the cavity, adeno-carcinoma was found to be present.

Course of Case.—When seen again four months later, patient looked well and passed urine comfortably and with good stream. Frequency five times in day and once at night. A 14 steel sound passed easily, but there was a feeling of roughness in passing through the prostatic area, like rubbing against wet wash-leather. Per rectum the prostatic area was small, but there was a firm band of infiltration as thick as the forefinger, passing outwards and upwards on the right side, in the area of the pelvic lymphatics. No glands were felt. The patient died on August 17th, 1922, 13 months after the operation. from progressive weakness, but Dr. G. S. Hovenden wrote that at no time had he the slightest difficulty in passing a full-sized catheter. No post-mortem was obtained.

Case 2.—Major A., aged 61, was seen with Dr. W. W. Shackleton on Dec. 1st, 1922. In December, 1919, he consulted his doctor owing to the occurrence of a blood-stained emission; he was then found to have an enlarged prostate, and on catheterisation was found to have residual urine. From this time he had increasing trouble in micturition, hesitation, and frequent desire. In September, 1921, he had acute retention, requiring catheterisation. Frequency gradually increased to two-hourly day and night, and a month ago his doctor found his urine very purulent and the bladder considerably distended. He had no backache, but marked thirst and loss of appetite. Had never seen blood in the urine.

Condition on Examination.—Thin, with flushed cheeks. Arteries thickened; blood pressure 170 mm. Tongue dry and brownish. The urine passed was turbid with pus, alkaline, sp. gr. 1004, and albumin was present. The bladder remained distended to within 1 inch of the umbilicus after micturition. Neither kidney was palpable. Per rectum the prostate was enlarged, flat, smooth, elastic, and readily movable. Blood urea was 72 mg. per 100 c.cm.

On Dec. 7th, 1922, a Pezzer tube was passed into the bladder above the pubes under local anæsthetic. On the following day the urea-concentration test only showed a percentage urea of 1·5 and 1·6 in the second and third hours. On the 17th blood-urea had fallen to 38 mg. per 100 c.cm. and urine urea concentrated to 2 per cent. and 2·2 per cent. in the second and third hours.

Operation.—Prostatectomy on the 19th. Enucleation was easily carried out except in the upper and posterior part, where the gland was adherent. The gland was of moderate size and showed many adenomatous, rounded masses, but was lacerated on the posterior aspect. Dr. H. J. B. Fry reported that the glandular structure showed irregular invasion of the surrounding tissue with loss of basement membrane and irregular mitoses, indicating adeno-carcinoma. This opinion was confirmed by Dr. S. Wyard.

Course of Case.—Except for some trouble from hæmorrhage on the fifth day, the patient did well and was healed, and passing urine naturally, on Jan. 5th, 1923. On Feb. 14th he looked well and tongue was clean and moist. A catheter was passed easily. Per rectum the prostatic area was soft, but there was some thickening in the left pelvic lateral space, suggesting commencing infiltration of the lymphatic area.

Case 3.—The patient, aged 62, had had trouble with frequent micturition and slow forceless stream for four years, gradually increasing until three weeks ago, when he had acute retention, for which a catheter was passed. Again retention nine days ago, since when a catheter has been passed twice a day; he only passes a few drops of urine per urethram when straining at stool. No hæmaturia; no backache or thirst.

Condition on Examination.—A thin, hard-working man. Arteries thickened. Tongue moist and clean. Neither kidney nor liver felt. Bladder distended to 2 inches above the pubes. Catheter passed and 20 oz. of urine drawn off, hazy, acid, sp. gr. 1016, albumin present. Per rectum the prostate was enlarged, smooth, elastic, but firm; the left side was larger than the right. The gland was movable and could be felt bimanually.

Operation.—On June 28th, 1921, the left lobe of the gland was enucleated with great ease, but the right was somewhat adherent in the lateral aspect. On subsequent examination this surface was found to be ragged, though the whole appeared to be the usual soft so-called adenomatous enlargement. Microscopic examination by Dr. G. L. Eastes showed, however, active adeno-carcinoma, consisting of polyhedral cells arranged in primitive glandular form.

Course of Case.—Patient did well after operation, and the wound closed in 20 days. During convalescence a tube of radium was passed into the prostatic cavity and allowed to remain in situ for four hours on alternate days for six applications. Six months later patient was passing urine with good force, but the frequency had increased to three-hourly by day and twice at night. No straining. Urine clear and free from albumin. He complained of aching in the right sacro-iliac and right sciatic areas. Glands could be felt to be enlarged in the right iliac fossa above Poupart's ligament, and on rectal examination there was a hard, nodular infiltration in the right lateral pelvic lymphatic area. The patient lost weight rapidly, though he had no further difficulty in micturition, and died in February, 1922, eight months after operation.

Case 4.—The patient, aged 78, was seen, with Dr. C. E. Sparks, on April 15th, 1922. He had had increased frequency of micturition for about five years, chiefly during the day, with feeble, forceless stream. No pain. On 13th he had acute retention and his doctor could only pass a No. 6 catheter with difficulty. The next day, the retention remaining, no catheter could be passed, and he was in considerable pain from distension of the bladder, with overflow dribbling of urine.

Condition on Examination.—His tongue was dry and glazed. He had bilateral backache and marked thirst. The bladder was very distended and tense. Per rectum the prostate was found to be enlarged, soft, uniform in consistence, and movable. Attempts at catheterisation failed, a stricture and false passage being present in the bulbous urethra. A small tube was passed into the bladder above the pubes and the urine slowly drained off. The urine was blood-stained, sp. gr. 1012, and contained albumin but no sugar. Ten days later his tongue was moist and clean, thirst had gone, and the urine was clear. The blood-urea was 41 mg. per 100 c.cm., but there was no test previous to the vesical drainage for comparison.

Operation and Course of Case.—Under an anæsthetic the stricture was divided and the suprapubic incision was enlarged. The prostate was projecting into the bladder in bilateral form and was easily and rapidly enucleated. The gland showed the usual rounded fibro-adenomatous masses, but it was noted that the right lobe was more dense than the left and was slightly reddened. Pathological examination by Dr. Eastes showed that there was undoubted carcinoma present in a small area in the centre of the right lobe. The patient made an excellent recovery from the operation, but died subsequently from diabetic coma.

I would like to mention another case (for the notes of which I am indebted to my colleague, Mr. Perciva Cole), though I do not include it in my series.

Case 5.—This patient, aged 75, was operated upon in 1917 for an apparently simple prostatic enlargement, having had prostatic symptoms for three years and for the three weeks previous to operation complete retention requiring catheterisation. The prostate was enlarged, smooth, and elastic, and looked upon as adenomatous. It was easily enucleated and the pathological report returned as adenomatous, though it does not appear that any microscopic section was made. In February, 1923, he was again admitted to hospital owing to difficulty in micturition. Frequency was increased to every half-hour during the day and four to five times at night with great straining. No catheter could be passed, each being arrested in the prostatic urethra. Under spinal anæsthesia a filiform bougie was passed with difficulty and the firm tissue in the prostatic area incised with an internal urethrotomy knife. This was followed by rigors and hyperpyrexia, sweating, and death after 19 hours. At the post-mortem the whole of the prostatic area was found to b occupied by firm hard tissue, which proved on microscopic examination to be spheroidal-celled carcinoma. There was glandular infiltration in the iliac and lumbar glands, but no evidence was found of visceral metastases. This case is very similar to the one reported by Mr. R. Thompson at the last pathological meeting of the Section of Urology of the Royal Society of Medicine.

Analysis of Cases.

Analysing the records of these cases, it will be seen that they present the usual train of symptoms spread over some years of gradually increasing difficulty and frequency of micturition associated with the ordinary benign prostatic enlargement, and that clinical examination of the prostate by digital palpation per rectum failed to convey any suspicion of malignant disease. It was only at the operation for removal of the gland that any difference from the usual simple enucleation was found, when subsequent microscopic examination revealed the presence of carcinomatous infiltration in the area in which some fixation of the gland occurred to the surrounding "capsule." In the first three cases the operation was followed by carcinomatous infiltration in the lateral pelvic lymphatic space which was certainly not present before it. It is a noteworthy fact, however, that micturition was able to be performed freely even when this recurrence was well established. In one case the enucleation presented no difficulty from fixation and subsequent microscopical examination revealed a small central focus of malignant disease in one lateral lobe, this finding being even a greater surprise than in the cases in which some capsular adhesion had been found. I am of the opinion that this condition happens more frequently than may be supposed, and is an indication that every gland removed at operation must be submitted to a close microscopical examination before it can be pronounced wholly innocent. In each case the average length of history given by the patient before seeking advice was about four years, so that the progress of each case cannot be looked upon as any more rapid than the ordinary benign prostatic enlargement; neither pain nor hæmaturia had been a feature in any case.

I must confess that in many cases of prostatectomy the macroscopic appearance of the gland removed has given rise to no suggestion of malignancy, so that in a large number of my cases no critical pathological examination has been made. Since I have become aware of the possibility of unsuspected malignant disease being present, however, I have had each gland examined, and I find that these cases form four in a total of 28 consecutive prostatectomies, or roughly 14 per cent. Owing to my failure to have all the glands examined previously to this series, figures from my former series of cases would not be reliable. I have, however, enlisted the services of Dr. Eastes and Dr. C. Fletcher, and I have their permission to make use of the following figures. In a series of 678 prostates removed by operation and submitted to them at the Laboratories of Pathology and Public Health for pathological examination during the last ten years, no less than 174, or 25·7 per cent., were definitely malignant, whilst they classify 58 others, or 8·6 per cent., as border-line or pre-cancerous; 443, or 65·3 per cent., were innocent (adenomatous), and 3, or 0·4 per cent., were tuberculous (Table I.). Dr. Fletcher adds the following criticism of these figures:—

Table I.—*Prostates Removed by Operation during the Last Ten Years and Submitted to Pathological Examination at the Laboratories of Pathology and Public Health. Figures given by Dr. G. L. Eastes and Dr. C. Fletcher.*

		Per cent.
Definitely malignant	174	= 25·7
Border-line cases (pre-cancerous) ..	58	= 8·6
Innocent (adenoma)	443	= 65·3
Tuberculous	3	= 0·4
Total ..	678	

> "I think the findings, however, must be discounted to some extent by the fact that many surgeons send for examination only those prostates about which they themselves have doubt and destroy the others. On the other hand, in the vast majority of these prostates, only certain parts have been cut and not complete cross-sections of both lobes—in fact, in many cases I only received a piece of the organ. This would militate against the other factor, but I think not to the same extent, and I consider that the percentage of malignant prostates given by these figures is higher than it would be if all prostates removed were examined. Those classified as pre-cancerous are border-line cases about which pathologists might well differ, and I should think most are innocent."

These figures and Dr. Fletcher's remarks upon them are very valuable, representing as they do the microscopic findings in prostates removed by operation in the practice of a large number of surgeons; but, as he justly remarks, the incidence of carcinoma in 25·7 per cent. is probably higher than the true proportion. I think, however, that we may with fair justice assume that the operation for the removal of the gland in the very great majority of these cases was performed under the diagnosis of a simple enlargement of the organ, though I know that I for one have not sent him many that I have removed, because I thought the naked-eye appearance was conclusive that the tumour was innocent, an error now rectified.

Findings of Other Investigators.

H. Wade, of Edinburgh, in 1914 found that in a series of 134 specimens of enlarged prostates, 14 were carcinomatous. Of these 14 cases, 10 were removed by operation and were similar to the cases I have described—namely, that they were removed under the assumption that they were benign tumours and only found to be carcinomatous on subsequent microscopic examination. He states that, in these cases, the carcinoma commenced in the centre of an area of chronic lobular prostatitis (by which term he describes the common adenomatous enlargement), remarking that by this fortunate circumstance enucleation is at first easy. I would remark that in three out of four of my cases the malignant disease appeared to commence in the periphery of the gland and in only one in the centre. Wade further emphasises the necessity of obtaining complete sections of the whole gland before an opinion can be expressed upon the existence of early carcinoma. He is of the opinion that the malignant change occurs in a gland that has already undergone enlargement by innocent "hypertrophy."

Wilson and McGrath in 1911 noted that carcinoma may be found in a prostate removed by operation for apparent benign enlargement, and remark that the malignant focus appears to commence in an area of prostatic enlargement. At the meeting of the International Urological Congress, held in London in 1911, a long discussion took place on the ultimate results of prostatectomy. In the report of the various papers there submitted I am unable to find any definite record of the finding of carcinoma in the apparently benign enlargement. Hugh Young, in a series of 450 cases operated upon by him, gives no record of any found to be malignant, but quotes some cases in which, as the result of operation, the urinary obstruction was not completely removed or partially returned. Most of these cases improved after second operations, but some may have been unsuspected carcinoma. Proust, Zuckerkandl, Thomson Walker, and Cuthbert Wallace in the same discussion make no reference to malignant disease. Fullerton, of Belfast, mentions two cases in which the firmness of the gland on rectal palpation gave rise to a suspicion of malignant disease, and in both the microscopic examination proved this to be present, but neither could be called unsuspected. Marion, Casper, and Pasteau also do not refer to it.

A serious note of the condition was brought out by Sir John Thomson Walker in an address on Some Problems of Prostatectomy, delivered before the Harveian Society in November, 1922,[2] where, in discussing the advisability of operation in early cases, he gave as a reason for this that malignant changes may occur in a prostate the seat of simple benign enlargement. He states that it may occur at the periphery of one lobe as a localised firm, inelastic area, which at operation strips with difficulty, or that it may occur in the centre of a lobe that has shelled out readily at the operation. In a series of 100 consecutive cases of prostatectomy for apparent simple enlargement by Sir John Thomson Walker, no less than 16 were found by the pathologist to show areas of carcinomatous change. In 11 of these 16 cases there was nothing in the clinical examination to suggest malignancy in any form; in four there was a small firm area on one side and in one the prostate was somewhat firm in consistence. These figures are of the utmost importance; if the combined figures reported by Wade, by Thomson Walker, and those reported above by me be added together it gives a total of 34 cases of unsuspected carcinoma out of 262 cases in prostates removed by operation for apparent benign enlargement in three series of consecutive cases without selection, or a percentage rate of nearly 13—a sufficiently large proportion to carry in one's mind when discussing with a patient the necessity of early operation and in outlining the prognosis after operation in these cases (Table II.).

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[2] The Lancet, 1922, ii., 1121.

TABLE II.—*Malignant Disease found Present in Apparently Benign Prostatic Enlargement in Three Consecutive Series of Cases.*

		Per cent.
By Mr. H. Wade	14 in 134 cases	= 10·4
By Sir John Thomson Walker	16 in 100 ,,	= 16
In my series of recent cases ..	4 in 28 ,,	= 14·3
Total ..	34 in 262 cases	= 12·9

Pathological Considerations.

In putting these remarks before you, I have tried to refrain from any discussion on the true pathology of the enlarged prostate, and only do so at this stage to draw a certain analogy with the types of carcinoma seen in other organs of the body. The senile enlargement of the prostate has been termed by different pathologists adenoma, cystic adenoma, simple hyperplasia, chronic lobular prostatitis, and interstitial prostatitis, and as far as I can gather they have not yet made up their minds as to which class it is to be labelled. Pathologists are not the only people in doubt about the prostate, for surgeons still seem to be divided in their opinion as to whether the operation of prostatectomy is to be regarded as a complete enucleation of the whole gland or as the removal of adenomatous masses from a false capsule formed of compressed prostatic tissue. Without venturing upon any decided opinion on these vexed questions, which might in these days of prostatic surgery change the forcible opinions expressed in the earlier days, my motive this evening is to direct your attention to the comparative frequency with which carcinoma may exist as a small undetected focus in a prostate which is the seat of senile enlargement. The analogy which I wish to make is that between these cases and those of carcinoma in other glandular structures in the body. In the breast, in the tongue, the stomach, and the intestine, as well as in other organs, the opinion has been expressed that carcinoma may occur in areas which have been the seat of simple chronic inflammation or of ulceration. May not the same sequence occur in the prostate, and thus carcinoma commence as a focus in a gland already the seat of the benign enlargement?

I wish to take this opportunity of thanking Dr. Eastes and Dr. Fletcher for the trouble they have taken in obtaining the figures relating to pathological examinations carried out at the Laboratories of Pathology and Public Health.

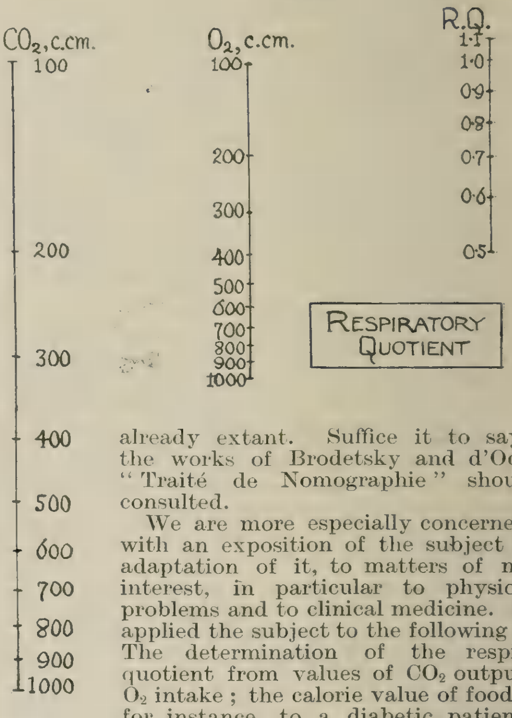
DONATIONS AND BEQUESTS.—The late Mr. J. Bright James, of Hartley, near Plymouth, left by will £1000 to the South Devon and East Cornwall Hospital; £1000 to the Royal Albert Hospital, Devonport; £1000 to the Blind Institution at Plymouth, and £1000 to the Blind Institution at Devonport.—By the will of the late Mr. William Tozer, of Tapton Edge, Sheffield, the testator left £500 to the Royal Infirmary, Sheffield; £500 to the Royal Hospital, Sheffield; £500 to the Jessop Hospital for Women, and £500 to the Children's Hospital, Sheffield.—Under the will of the late Mr. Joseph Taylor, of Balls-road, Birkenhead, Cheshire, the Birkenhead Borough Hospital will receive £250 and the Birkenhead and Wirrall Children's Hospital £200.

APPLICATIONS OF NOMOGRAPHY TO MEDICINE.

BY W. A. M. SMART, M.B., B.S., B.SC. LOND.,
DEMONSTRATOR IN PHYSIOLOGY AND PHARMACOLOGY, LONDON HOSPITAL.

NOMOGRAPHY is now so well established that few words of introduction are necessary. There are many formulæ in physics, engineering, and aeronautics in which three or more variables, or powers of variables, occur. In the ordinary way, space of three or more dimensions would be required for their representation, and this in many cases would be inconvenient or even impossible. Nomography is a geometrical device whereby the relation between any number of such variables may be represented graphically on a plane surface such as a sheet of paper. There is no division into squares, but merely a set of lines, which may be straight or curved, parallel or not, as the case may be. The lines are suitably graduated, each according to one of the variables, and the relation between these variables is such that a straight line can always be drawn through corresponding quantities. It is not proposed to enter here into an account of the method of determining the graduations, the position of the zeros of the scales, or their relative distances apart. This must be sought in the books and literature already extant. Suffice it to say that the works of Brodetsky and d'Ocagne's "Traité de Nomographie" should be consulted.

FIG. 1.



We are more especially concerned here with an exposition of the subject in my adaptation of it, to matters of medical interest, in particular to physiological problems and to clinical medicine. I have applied the subject to the following cases: The determination of the respiratory quotient from values of CO$_2$ output, and O$_2$ intake; the calorie value of food given, for instance, to a diabetic patient, and consisting of various weighed amounts of protein, fat, and carbohydrate; the calorie value per kilo body-weight; and the determination of pH value from a knowledge of the hydrogen-ion concentration. The Du Bois formula connecting surface area, body-weight, and height has already been nomographically demonstrated by Feldman and Umanski.[1]

The Respiratory Quotient.

The vertical line on the left (Fig. 1) is graduated logarithmically from above downwards to represent c.cm. of CO$_2$ exhaled, while the centre line, likewise graduated downwards, is only half the scale of the former and represents the number of c.cm. of oxygen taken in. The line on the right-hand side gives the value of the R.Q. All one has to do is to take a straight ruler or thread, place one end over the number of c.cm. of CO_2 exhaled by the patient, join it to the c.cm. of O_2 inspired, and produce the line thus formed to the right-hand scale. The point of intersection with it immediately gives the required value of the R.Q. It will thus be seen that the matter is quite simple, once the scales have been accurately drawn. The chart may be conveniently pasted on cardboard, varnished, and hung up in the ward ready for instant use.

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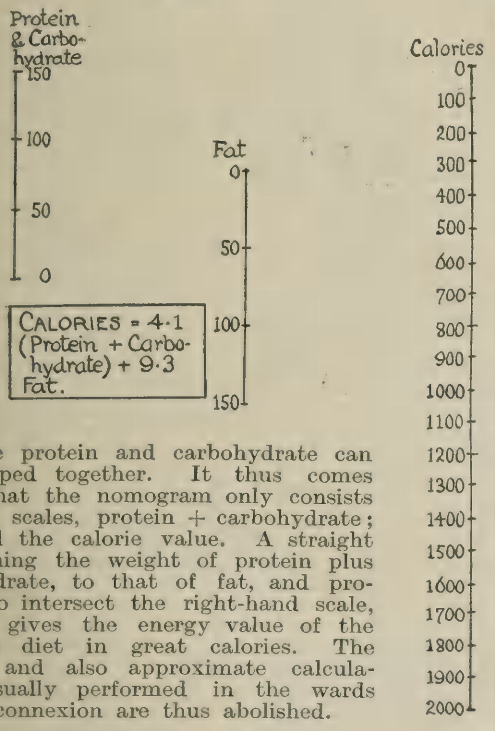
[1] THE LANCET, 1922, i., 273.

The Calorie Value of a Diet.

This is a rather more ambitious nomogram (Fig. 2), more factors being included, but it will be seen that if the scales are suitably drawn and adjusted, the matter is as simple as before. In theory we require a nomogram of the form $Q = aX + bY + cZ$. It is better adapted to our purpose to write $Q = pP + cC + fF$, where Q is the number of calories produced, P the weight in grammes of protein, C that of carbohydrate, and F that of fat. Each weight has now to be multiplied by the appropriate heat factor, $p = 4{\cdot}1$ for proteins, $c = 4{\cdot}1$ for carbohydrates, and $f = 9{\cdot}3$ for fats. Now this nomogram can be considerably simplified by the following considerations. The scales for the different food constituents can be each enlarged by 4·1 times, or 9·3 times the unit, as the case may be.

FIG. 2.



Also the protein and carbohydrate can be grouped together. It thus comes about that the nomogram only consists of three scales, protein + carbohydrate; fat; and the calorie value. A straight line joining the weight of protein plus carbohydrate, to that of fat, and produced to intersect the right-hand scale, at once gives the energy value of the patient's diet in great calories. The tedious and also approximate calculations usually performed in the wards in this connexion are thus abolished.

Calorie Value per Kilogramme.

In clinical work with diabetic patients it is necessary to know the calorie value of their diet per kg. of body-weight. For this purpose another nomogram has been designed (Fig. 3). The left-hand scale is total calorie value, the middle scale is body-weight, which may be in stones or in kg., and the right-hand scale gives the required calories per kg. It would be neater, perhaps, if this nomogram were combined with that of the calorie value of diets. There is no difficulty in so doing and a very comprehensive nomogram results. This means that, having determined by the ruler the total calorie value corresponding to the diet, we must look on the new scale for the same number denoting the value of the total calories. We then start a fresh line from this point, through the value of the body-weight of the patient, and produce it to cut the calorie-per-kg. line, thus giving the result required. As the weight of the patient is often measured in stones, it is convenient to graduate the weight scale in stones and in kg.

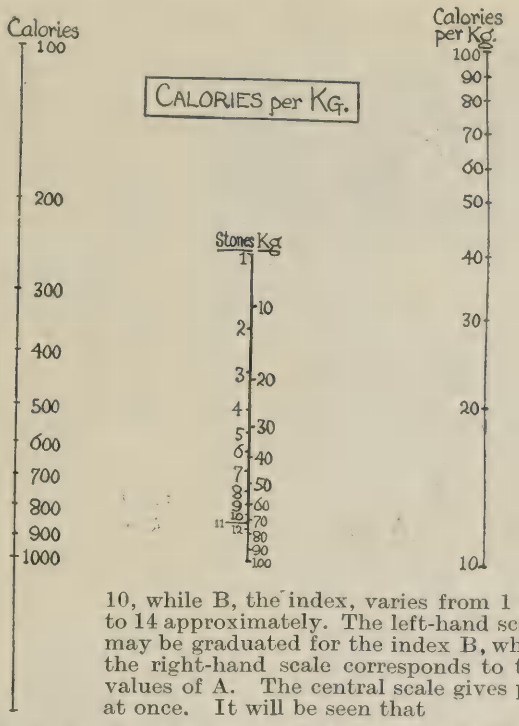
Hydrogen-Ion Concentration Values.

The formula for any hydrogen-ion concentration may be written $C_H = A\,10^{-B}$, where C_H is the concentration mentioned, A is a numeral between 0 and 10, while B, the index, varies from 1 up to 14 approximately. The left-hand scale may be graduated for the index B, while the right-hand scale corresponds to the values of A. The central scale gives pH at once. It will be seen that

$$pH = -\log C_H = -(\log A - B \log 10) = B - \log A.$$

Hence the nomogram is of the type $y = z - x$, showing that it can be plotted in the ordinary way—i.e., y as ordinate (giving pH), with x (i.e., log A) as abscissa, and z perpendicular to both. It is, of course, a plane. It is also clear that one might have put $y = 10^{-x}$ using semi-logarithm paper.[2] The above merely shows that it is just as readily adaptable to nomographic representation.

FIG. 3.



Percentages.

These may be easily determined nomographically. Such values are so often required in calculating statistics, and modifications can be made to suit any particular case.

What I have written probably suffices to show to what various cases the modern idea of nomographic representation may be put in the direction of physiological and medical science. There is no limit to the matter, beyond the fact that the quantities to be represented must be related to each other by some definite mathematical law. The great majority of such applications are fairly simple, the only difficulty being the setting out of scales, their distance apart, and their method of graduation. But such scales having once been made can be set up in block and reproduced indefinitely. The only real requisite is a straight ruler. The R.Q. chart, the total calorie value, and the calorie value per kg. charts are in constant use in the diabetic wards of the London Hospital. Copies of these nomograms may be obtained from Messrs. J. J. Griffin and Sons, Ltd., Kemble-street, Kingsway, London, W.C.

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[2] Roaf: Jour. Physiol., 1921, vol. liv., proc. p. 17.

Clinical and Laboratory Notes.

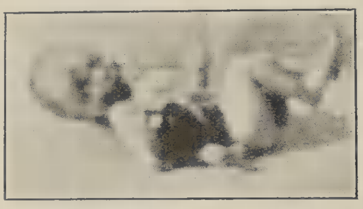
A CASE OF EXOMPHALOS.

By Frank Blake, M.R.C.S. Eng.

The following case of exomphalos is recorded as being of interest:—

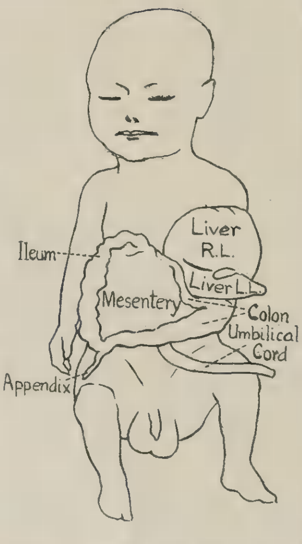
On June 24th, 1923, I was called to attend a primipara aged 31. I found that the membranes had ruptured prematurely, and that there was practically no dilatation of the os. The head was very high up, but able to pass the brim of the pelvis. By abdominal palpation I had already diagnosed a first vertex presentation. I left the case until the next morning, when I found that almost no progress had been made, and that the pains were very badly borne. I administered small doses of morphine and hyoscine subcutaneously, and waited. Late in the evening I saw the patient again and found that progress towards dilatation was very slight. The temperature had risen to 100·2° F. and the pulse-rate to 104.

Fig. 1.



Much against my principles, I decided to dilate the cervix manually and apply forceps. The fœtal heart was heard. I administered chloroform and proceeded. After traction (with Nevill's axis-traction handle on forceps) for about one and a half hours I delivered a full-term, plump but dead child with exomphalos, an abnormality I have never seen before. There was a defect in the middle line of the body from the umbilicus to the sternum, and the liver, gall-bladder, jejunum, ileum, ascending and transverse colons were outside the body cavity and merely covered with amnion.

Fig. 2.



The mother made an uneventful recovery without running any temperature after the day of delivery. The placenta was normal and quickly followed the child. The accompanying snapshot (Fig. 1) gives some idea of the condition. The dark object on the infant's right is the liver. Fig. 2 is a diagrammatic representation.

I find in Tweedy and Wrench, and also in the "Ten Teachers," only a few lines on this condition.

East Harling, Attleborough, Norfolk.

A CASE OF
OSTEO-ARTHRITIS IN CHILDHOOD.[1]

By Philip Weatherbe, M.B., Ch.B. Edin.,
Surgeon, Halifax Children's Hospital, Nova Scotia.

Osteo-arthritis in childhood is of interest on account of its rarity and doubtful pathology. Deformity may be prevented by timely splinting of the affected joints in their most useful position, and the cause should be sought early and removed if possible. Such cases, if left to continue without treatment, become very grave.

A well-nourished girl, aged 4, was admitted to hospital with a chronic crippling deformity of the joints, having been bedridden since the deformity began at 18 months of age.

History.—The condition began gradually at 18 months of age by left elbow becoming tender and painful and the child restless and fretful. After the condition persisted for three weeks a physician saw the child for the first time and he thought an injury had occurred to the elbow, but after an X ray examination the diagnosis still remained doubtful. Shortly after this the knee-joints became swollen and painful, followed by the other joints of the limbs. There were exacerbations of pain and swelling in the joints from time to time flitting from one joint to the other. The knees were always the most markedly affected and the most painful. The pain was severe enough to waken the child nightly, causing it to cry. The pain at night was present to some extent on admission. This child is the youngest of a healthy family of 11, who was first breast-fed and then bottle-fed until 13 months of age. The parents are healthy farmers, free from tuberculous or specific disease.

Condition on Admission.—Absolute ankylosis of left elbow-joint. Left wrist-joint swollen and stiff and impossible to dorsiflex, but easily flexed with no tenderness or pain in these two joints. Both knees flexed beyond a right angle and ankylosed in this position with swelling and slight tenderness. Both ankle-joints swollen and stiff with very limited movement. Other joints normal. General health good except for a chronic constipation.

The child had always been constipated, taking a mixture of Epsom salts and soda for months before admission, and cascara and liquid paraffin after admission to hospital. The diet has been liberal and nutritious, and there was no other history of disease.

General examination was conducted with the object of trying to find some focus of infection. A blood culture was negative. The blood was normal, so were the urine and fæces. The chest and abdomen revealed nothing by physical examination. Constipation was marked and the tonsils were under suspicion. X ray examinations of the joints revealed nothing definitely abnormal.

Treatment.—Treatment was based upon the possibility of infection from the tonsils and auto-intoxication from the bowel. The tonsils were removed, and a buried abscess found in one. The constipation was overcome with medicine—cascara 1 drm., liquid paraffin 1 drm.—night and morning. The pain was relieved by sodium salicylate ionisation. The joints were limbered up with sodium chloride ionisation, radiant heat, and massage, and the deformity corrected by forcibly breaking down adhesions under general anæsthesia and fixing the knee-joints in the corrected position by means of plaster of Paris. This operation was repeated on three different occasions with intervals between for massage and passive movement. After six months' treatment the child was able to walk with straight limbs partially movable, and with the full use of the left arm. The cause in this case is considered a combined one, an infection from abscess in tonsil and auto-intoxication from the bowel.

The result in this case up to the present has been satisfactory, but, as in other deforming diseases treatment should be maintained for months or years to prevent recrudescence, especially regarding deformity.

Venereal Disease in Western Australia.—In his report for the two years ending Dec. 31st, 1922, Dr. R. C. Everitt Atkinson, Commissioner of Public Health in Western Australia, states that the total number of new cases of venereal disease notified during the year 1921 was 1115, an increase of 132 upon the previous year. This increased incidence appears in the case of both sexes, 73 being males and 59 females; but whilst in the case of the former it represents an increase of only 8·4 per cent., in the case of the latter an increase of 50·8 per cent. is shown. The proportion of males to females affected was 5·3 to 1, as against 7·5 to 1 last year. It is probable, he points out, that this discrepancy represents, not an actual increase in the prevalence of venereal disease amongst the female population, but a greater willingness on the part of women to seek medical attention and an increasing knowledge of the subject and of the benefits to be derived from early recognition of the disease and early treatment of it. It is possible, he says, that the increase in tertiary cases is due directly to the more sensitive ice-box method of performing the Wassermann test having brought to light cases previously not diagnosed as syphilitic. Legal proceedings were taken against 24 persons consistently refusing to resume venereal treatment, 23 being males and one female. In ten cases a conviction was recorded. During 1922 the total number of new cases of venereal disease notified to the department was 727, which shows a reduction of 384 on the previous year. This reduction was evident in the case of both gonorrhœa and syphilis and in both sexes, and, provided it actually represents a diminished incidence, is extremely encouraging, justifying as it does the measures that have been adopted to cope with the problem of these diseases.

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[1] Exhibited before the Halifax Medical Society, in April, 1923.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

INAUGURATION OF THE SECTION OF COMPARATIVE MEDICINE.

AT the first meeting of the new Section of Comparative Medicine on Oct. 24th Sir **CLIFFORD ALLBUTT**, President of the section, delivered the introductory address on the

INTEGRATION OF MEDICINE.

He said: If for years slowly and almost silently our work makes its way we must be content; our experience of the world teaches us to be content; but happily, now and then, after long hewing in the dark forest, we break into the light; we find ourselves almost suddenly upon a peak, our way open and bright before us, and our cause justified before man. Such a festival is our meeting to-day.

The barriers of convention, which ought to be slender and occasional, are of all the most inveterate and impregnable. Of such have been the barriers devised by mediæval perversities which, to its grievous injury, have split up medicine into fractions. As physic was divorced from surgery and mind from body, so the diseases of animals and plants were separated from those of mankind. The folly of the division of the medicine of the hand from the medicine of the bottle has now become so glaring that our next festival may be on the blowing up of this rampart; indeed, the gynæcologists have exploded their end of it already. But it is a big business to transform a mediæval castle, with its baileys, barbican, and keep, into a modern domain.

Let us rejoice then together that by the liberality, foresight, and generosity of the Royal Society of Medicine we are enabled to-day to celebrate the unity of medicine as a biological study. That you have made me your president on this memorable occasion, for in the history of medicine this day will take a memorable place, is a privilege for which I am deeply grateful to you. We have the mind of James Paget with us, and that of Sir John Bland-Sutton, happily still in the body, with us also. By him I have felt that this chair ought to have been occupied; for, while I have been talking about comparative pathology, he has been working in the field; but he has been called to a higher place, a distinction on which we all cordially congratulate him. For personal help in our campaign I should also like especially and gratefully to mention General Sir Frederick Smith, Prof. F. T. G. Hobday, Mr. W. M. Scott, of Bridgwater, and Prof. T. B. Wood, of Cambridge.

A Preliminary Survey.

I think you will agree with me that we must not swarm upon our new estate and try to do too much at first. If we do we may tire ourselves, overrun our work, and tread down our crops. Let us survey our ground carefully and make good by degrees. Many of our supporters are very busy men, and may be discouraged by too long papers or too many meetings; the secretaries will, I am sure, do their best to see that the papers laid before you are concise, relevant, and not too abundant.

Prof. W. H. Welch, of Baltimore, has written to me in these words: "Your first thoughts will be those of comparison"; to shed cross lights reciprocally from the pathology of one kind of living thing upon another, watching the variations of function in various biological systems. Consider, indeed, for a moment what, without the comparative method, would have now been the state of those other sciences which have worked by this method for many years past. Without the comparative method what of anatomy, or of anthropology, or of embryology; or what again of philology, of history, or even of theology? Without the method they would never have attained to the master conceptions which have lifted those studies from the plane of hobbies, or of literary amenities, or of mere erudition, to the rank of scientific ideas. Incidentally it is true that pathologists have already done much by their experimental researches—as into the properties of the cell, in the study of infections, and so forth—to gather in some comparative pathology, by parcels; but this is a straggling collection of knowledge; it gives us no general view of the whole, nor coördination of its parts.

Pathological Biology.

A certain portion of the time of this section will be devoted to the utilitarian side of our subject; to the study of the diseases common to man and animals—many of which may be carried by animals to man and conversely; to the ravages of disease in our herds and our crops; and, on the other hand, to the respective immunities and defences of plants and animals, as, for example, the immunity of the ox tribe to glanders, mentioned by Prof. Hobday at the Glasgow meeting of the British Medical Association, or again to our experience of anthrax serum; effective in man, in animals ineffectual, and again to the maintenance of the balances of species in the economy of nature. But, as I wrote in the *Times* in 1906 (June 5th), while not neglecting these instant needs we shall not permit our attention to be distracted from the pursuit of the larger and more disinterested researches; from a pathological biology which hereafter shall give us not only a control of several diseases, but an insight into large and fertile principles, foresights and controls over wide fields of nosology, interpretations of the various comings and goings of the manifold kinds of disease in all living things—plants and animals—of specific kinships underlying superficial differences, and of disorders of the more complex animals by the light of elementary changes in the simplest animals and in plants, in which the plasticity, I had almost said the pregnancy, of protoplasm shows us in manifold ways its marvellous endowments. We must have a keen eye to practice, whence, indeed, many of our most fertile problems arise, but we must aim also at the building up of the great principles upon which depends the practice of the future. I may recall the following reflection of the Agricultural Correspondent of the *Times* of 1906 (presumably Dr. Fream): "From a pathological point of view they (diseases of sheep) are a perfect mine of wealth, for they are fraught with scientific problems of the highest interest and importance, and are most suggestive of what may turn out to be a new light on the pathology of many of the contagious and infectious diseases of man and the lower animals." At this moment there appears in the Proceedings of the Royal Society (Ser. B, vol. xcv., p. 228, Sept. 1st, 1923) a very interesting study of that strange monstrosity achondroplasia. Few human achondroplastics manage to get born; of the few were a certain Egyptian god—who perhaps did not need a uterine phase—Æsop and Quilp. They are dwarfs with big heads and bodies, short arms and legs, and fin-like hands. Now Mr. Crew has illustrated the pathology of these monsters by certain monstrous calves of the Dexter breed, and postulates a perversion of the pituitary gland as the cause of the monstrosity. Moreover, he points out that this deformity may even shed some light upon the species problem.

I ought not to close an address, even so informal as this, without at least an allusion to the name of Pasteur, who threw open vast fields of comparative pathology; to mention the name of that great master is sufficient to turn your hearts silently to the centenary commemoration of that great man. I will conclude these remarks with the following quotation from another master of medicine, John Hunter: "In the course of a variety of experiments on animals and vegetables I have frequently observed that the results of experiments in the one have explained the economy of the other, and pointed out some principle common to both."

I now ask you to join me in wishing long life and prosperity to our new section. In Benjamin Franklin's now proverbial phrase, "Hard work is still the road to prosperity, and there is no other."

Cryptorchidism in Animals.

Prof. F. **Hobday** said he had chosen the subject of cryptorchidism partly because it was at least as common in domesticated animals as in man, and partly on account of his 30 years of experience in operating for this condition in animals. Human and veterinary surgeons, however, regarded this abnormality from different angles; the operative aim of the veterinary surgeon was to remove the hidden testicle in order to render the animal more docile and to do away with unpleasant characteristics of the uncastrated male. In animals the tendency to cryptorchidism was undoubtedly hereditary. This was well recognised by breeders as well as by veterinarians; the fault might even be transmitted to the second generation through a female. In addition to cryptorchidism, genuine cases of anorchidism and of monorchidism occurred in animals. Failure of the testis to descend might be due to abnormally short or abnormally long peritoneal attachments, to the unusual size of the testis or epididymis, which prevented its passage through the inguinal canal, or the canal itself might be narrower than normal. Finally, the gubernaculum testis might be paralysed or the skin of the scrotum so tight that when the testis had descended through the inguinal canal the organ was forced into an abnormal position under the skin of the prepuce, the abdomen, or the thigh.

In veterinary practice it was well established that when both testes were retained within the abdomen the animal was sterile, although spermatozoa were occasionally seen on microscopical examination. Sir John Bland-Sutton stated that after careful observations for many years of abdominal retention of the testes in man, he had only once found spermatozoa. In the horse in particular it was always advisable to convert the cryptorchid into a gelding on account of the treacherous disposition of these animals. Prof. Hobday gave an illustrated description of the actual procedure adopted which varied according to whether the testis lay in the inguinal canal or within the abdomen. In the latter case the abdomen itself was opened, the testis found and withdrawn by the hand. As the epididymis might be separated from the body of the testis by some distance, it was important to see that the former was not mistaken for the whole organ. In animals, and in the horse in particular, there was a wide range of abnormalities of the retained testis, ranging in size from that of a Rugby football to that of a walnut, and containing worms, cartilage, bones, and teeth and various kinds of tumour tissue. One case had been recorded in which the testis weighed 100 lb. A number of photographs of such abnormalities was exhibited by the epidiascope, illustrating the types commonly found in the horse, "dentigerous" and dermoid cysts containing hair being the most common. Very large cysts had to be ruptured before the testicle could be withdrawn from the abdomen. Other kinds of tumour tissue found were sarcoma, embryoma, fibroma, and lipoma; the latter was unknown in human testicular tumours, and the first of the kind reported. A specimen was also shown of a cyst of the testicle containing a worm (the *Strongylus edentatus*); a corresponding condition in man was the occurrence of living acari, *Histiogaster spermatagus*, in a cyst of the testicle. In other domesticated animals, except perhaps the dog, cryptorchidism was uncommon. A specimen of torsion of the retained testicle of the dog was exhibited. Prof. Hobday concluded by drawing attention to the fact that while testicular tumours and particularly dermoids were common in colts, he had never seen a dermoid cyst of the mare's ovary, and by emphasising the hereditary nature of cryptorchidism in animals. In both these respects animals differed from man.

Cryptorchidism in Man.

Mr. W. **McAdam Eccles**, who discussed abdominal retention of the testis in man, dealt first with the ætiology of the condition, and suggested that the failure of both testes to migrate from the abdomen might be due to some error in the endocrine system following from the imperfection of the testes themselves. When only one testis had failed to migrate the problem was difficult and he could offer no solution. In man there was little evidence of any hereditary predisposition; he had carefully inquired in all cases and only 2 per cent. of cases gave a history of a similar condition in grandfather, father, or brothers. As regards function, it was questionable whether an imperfectly descended testis was ever fully developed (it was incorrect to describe it as atrophied). In man there was a greater likelihood of spermatogenesis in the abdominal testis than in the testicle retained in the inguinal canal; instances of procreation by men with double abdominal testes were fairly common, but it was rare to find parentage permitted to men with double inguinal arrest. The internal secretion of the abdominal testis appeared to be preserved in some degree, although perhaps not fully.

A testis within the abdomen of man was liable to the same diseases as was the fully migrated organ. Gonorrhœal epididymitis might occur and be easily mistaken for appendicitis. Cysts of the testis proper were rare; simple cysts of the epididymis had been described. It was doubtful whether testicular tumours, almost always highly malignant, such as malignant teratoma, carcinoma, sarcoma, and chorion-epithelioma, were any commoner in the retained testis. As regards treatment, the only condition which called for interference was inflammation of an abdominal testis, when the organ should be promptly removed. To replace an abdominal testicle in the scrotum was impossible, and its removal involved a loss of the internal secretion.

Sir **John Bland-Sutton** referred to the attention that had been devoted to this subject both in man and animals since the days of Hunter, who first traced the gubernaculum by dissection and suggested that malposition of the testis was due to imperfection of the gubernaculum. The frequency of unilateral retention of the testis disposed at once of the hormone theory. He suggested that cryptorchidism might be in some way associated with an imperfection of the curious readjustment of the peritoneum which occurred during later fœtal life. The dermoid tumours of the testis so common in the horse arose, as Verneuil had pointed out, not from true testicular substance but from the paradidymis. It was strange that they should be so common in the retained testis of the horse, while in man but 13 dermoids of the testis were recorded in the literature and only one of these was in a retained testis. He suggested that the tissue lying between the testis proper and the epididymis of the fœtal horse might form a fruitful field for further investigation.

In answer to questions, Prof. **Hobday** re-stated his belief in the hereditary nature of cryptorchidism in the horse. In one particular district where a "rigg" had been used at stud, he was called upon to operate on 10 or 12 horses every year for cryptorchidism.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

The annual meeting of this section was held on Oct. 26th, with Mr. **Anglin Whitelocke**, the President, in the chair.

Mr. P. **Lockhart-Mummery** showed a case of hemi-hypertrophy traced for 18½ years. The patient was first exhibited before the section in January, 1906.[1] It was shown in collaboration with the late George

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[1] Proceedings, 1906, vi., 153.

Carpenter. The child was then 2½ years old, and the left side of his body and head was growing faster than the right side. He was originally brought to hospital because he was walking lame. There was nothing else wrong with the child; the mental condition was normal, and no abnormalities were detectable in the nervous system. The difference in length of the lower limbs was half an inch. The child was again exhibited at the Society in January, 1908. He was now very lame, and there was 3½ in. difference between the length of the legs. X ray photographs showed the epiphysis to be more advanced on the left side than on the right side. The child appeared to be two years older on the left side than on the right side, and the left side of the tongue, the left eye and ear were all larger than the right. The patient was now shown at the age of 21. There was now only half an inch of difference between the two sides, and it was obvious that the small side was now catching up with the big side. Except on close observation no difference between the two sides of the face or tongue could be detected. As far as the speaker was aware this was the only case that had been traced to adult life.

Dr. F. J. POYNTON showed two cases—one of unilateral and one of bilateral congenital dilatation of the ureters. In the former the diagnosis was confirmed by a post-mortem examination. The diagnosis was made in life by the aid of a cystoscopic examination and by the X rays after injecting 20 per cent. sodium bromide into the bladder and ureters. In both cases there was a gross infection of the urinary tract. The question of the causation of the dilatation was discussed and the majority of those present seemed to favour the presence of a spasm of the urethra.—Dr. DINGWALL FORDYCE suggested the possibility of this spasm being analogous to that of pyloric stenosis. He thought it doubly interesting because the elder of the two children and the one in which the condition was bilateral was a girl.—Mr. MAX PAGE suggested that if this condition was analogous to pyloric stenosis, it might be treated upon the same lines by section of the sphincter.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held in Manchester on Oct. 19th, the President, Prof. BLAIR BELL, being in the chair.

Dr. D. DOUGAL (Manchester) read a paper on the

Operative Treatment of Incontinence of Urine in Nulliparæ.

He said that the degree of control has been expressed by Taylor and Watt as (1) normal; (2) fair, which is normal except on special occasions, as, for example, over-distension of the bladder, temporary vesical irritability, or times of mental or physical fatigue; (3) poor, which allows the urine to escape on any special abdominal strain, such as may be caused, for example, by coughing or active exercise, such patients being wet most of the time; (4) lost, when urine continually dribbles from the patient and very little is retained in the bladder. Taking the "poor" and "lost" groups only, the figures showed that about 8 per cent. nulliparous women suffer from disagreeable amount of urinary incontinence (Taylor and Watt). In this paper Dr. Dougal proposed to deal only with those cases of active incontinence of urine which are due to weakness of the vesical sphincter. He said that the sphincter apparatus of the bladder consisted of three parts: (i.) Intrinsic sphincter, which is merely a specialised portion of the middle stratum of bladder musculature. Its presence is even denied by some authorities. (ii.) Extrinsic or urethral sphincter composed of fibres of compressor urethræ forms a complete ring round the upper part of the urethra. All authorities are agreed that this is the most important factor in sphincter apparatus. (iii.) The supporting fibromuscular tissues lying between base of bladder and the anterior vaginal wall. It is made up of paravesical vascular sheaths and their connexions, and is strongly developed towards each side, where it is closely related in front to the anterior layers of the levator ani and behind to the parametric tissue. He considered that the sphincters are the most important factors and, in support of this contention, he cited the fact that incontinence of urine is not commonly met with in cases of prolapse, even when the anterior vaginal wall, and presumably the supporting structures of the bladder, are much weakened and displaced. He described the more important operations for the cure of this condition illustrated by lantern slides. The operation he performed on his successful cases was as follows:—

The perineum was first incised to allow of easier access to the parts. A triangular area of the anterior vaginal wall was then removed, exposing the urethra and bladder. A mushroom catheter was then passed into the bladder, and using this as a guide two mattress sutures of catgut were inserted into the tissues on each side of the bladder neck (after Kelly). Deep sutures were then inserted through the para-urethral tissues to narrow the canal throughout its length, and the anterior colporrhaphy then completed in two layers. Finally the perineal incision was sutured.

He added notes on two cases.

1. This patient was an unmarried woman, aged 26 years. Menstrual history normal, thin, poorly nourished, very little energy, and very depressed and miserable. Had suffered from urinary incontinence practically since birth, worse at night. All sorts of medical treatment tried. The external genitals were normal and of virginal type. The vaginal orifice admitted one finger with difficulty, but the upper part of the anterior vaginal wall appeared somewhat lax, although there was no actual prolapse. The uterus was normal in size and acutely anteflexed. After the operation, as above, she needed catheterisation for a week. Her bed was wet once before discharge from hospital. She had been well ever since—for two and a half years—and was now cheerful and healthy.

2. This patient was also unmarried, aged 21 years. Menstrual history normal, rather thin and miserable, and not very bright mentally. She was perfectly normal till an acute illness ten years ago, but since then had been incontinent, chiefly at night, but also during the day. For the last six years had not had a holiday owing to bed-wetting. External genitals normal, vaginal orifice virginal, and again a considerable laxity of upper part of the anterior vaginal wall was found. The uterus was normal in size and acutely anteflexed. It was over six months now since the operation and she had wetted her bed twice, but she had now been away for a holiday and was much better in every way.

The great majority of these cases of incontinence could be cured or, at any rate, much relieved by operative treatment. There was no doubt that many young single women are allowed to go on suffering from this distressing ailment because no obvious lesion could be made out, and the disability was attributed to neurosis. There is a neurotic element, no doubt, in some cases, but the real underlying cause would be found in a weakness of the sphincter mechanism, which could often be dealt with successfully by surgical methods.

Discussion.

In the discussion which followed, Dr. MILES PHILLIPS said he thought that incontinence of urine was a common feature of partial vaginal prolapse in multiparæ.—The PRESIDENT expressed surprise at the high figure (8 per cent.) of incontinence in nulliparæ. He did not believe that incontinence was due to neurosis. There was not a single structure in the apparatus which could be said to constitute a true sphincter.—Prof. W. E. FOTHERGILL said he had done Pawlik's operation a few times with success. He questioned that incontinence of urine was common in cases of vaginal prolapse in multiparæ. He thought that the operative measures taken were a suggestive treatment.—Dr. H. LEITH MURRAY said that the fact that the incontinence was worse at night pointed to a neurotic element rather than to the dislocation theory.

Specimens were exhibited by Dr. J. H. WILLETT, Dr. LEITH MURRAY, and Dr. J. E. GEMMELL.

Reviews and Notices of Books.

The Blood-Sugar in Man.

Investigations on the Blood-Sugar in Man. Conditions of Oscillation, Rise, and Distribution. By Karen Marie Hansen. Copenhagen: Nielsen and Lydiche (Axel Simmelkiaer). Obtainable from H. K. Lewis and Co., Ltd., London. 1923. Pp. 224. 10*s*.

This monograph was written for the degree of Doctor of Medicine in the University of Copenhagen, and gives the results of an enormous amount of research work which was done in the clinic of Prof. Kund Faber. Whereas most workers are content to estimate the blood-sugar every 15 or 30 minutes after a dose of sugar, Dr. Hansen has estimated it as often as she could find time to collect a sample of blood—i.e., every two to three minutes—and the results are plotted in the form of a curve. An elaborate series of controls was made, and the author believes that the Hagedorn and Jensen method for estimating the blood-sugar is accurate to 0·005 g. per cent.

It was found that the blood-sugar of a fasting healthy person was not constant but might vary from 0·085 per cent to 0·105 per cent. in a series of irregular oscillations. These oscillations were not present when the blood-sugar was increasing after a dose of sugar, but appeared if a plateau was formed. They disappeared when the blood-sugar was falling, to reappear as soon as it had fallen to somewhere near its original level. These results were obtained as a control for similar but more pronounced oscillations which occurred among the numerous diabetic patients who were examined. The curve showing the gradual fall of the blood-sugar of a diabetic patient during a fast is very striking. Elaborate curves were obtained from healthy persons showing the effect of increasing doses of sugar. A series of diabetic patients was also examined after doses of sugar before and after treatment. An attempt was made to see whether the sugar tolerance of the patient had changed as the outcome of treatment. The results seem to show that although the fasting value of the blood-sugar might fall to normal under treatment, there was but little evidence of a recovery of tolerance. It must be pointed out, however, that the amount of carbohydrate in the patient's diet would hardly give the patient much chance of a recovery of sugar tolerance. The partition of sugar between the plasma and corpuscles was also investigated. In health it was found that the sugar was almost equally shared between them. In patients with severe diabetes, however, the plasma contained more sugar than the corpuscles. Under treatment there was an approach to the normal condition.

The monograph is written in fair English. For all workers on sugar tolerance it will be of great assistance, both for the references to other work and for the numerous experiments described.

Surgery of the Spine and Extremities.

By R. Tunstall Taylor, M.D., Professor of Orthopædic Surgery, University of Maryland, and College of Physicians and Surgeons. London: Stanley Phillips; Philadelphia: P. Blakiston, Son and Co. 1923. With 604 illustrations. Pp. 550 + x. $7.50.

Dr. Tunstall Taylor is well-known as an orthopædic surgeon, and we welcome this expression of his matured experience in the treatment of deformity. Although the term is not included in the title, the opening chapter begins with an attempt, in which the author is not more successful than his predecessors, to define orthopædic surgery. In this connexion we would remark that the genitive of *παῖς* is not *παιδὶς*, and that we find no such word as "fenestrum" in our Latin dictionary. But we note that Dr. Taylor has abandoned the usual American "orthopedic" for the more correct spelling. The historical notes are of some interest and well illustrated, but scant justice is done in them to the part taken by English surgeons in the development of orthopædic surgery. It is, moreover, strange that the only name mentioned in connexion with the Balkan Frame is that of an American who did not serve in the Balkans and had consequently nothing to do with the original invention, however successfully he may have applied it in France. The descriptions of apparatus and of the technique of its preparation and application are likely to prove useful, as also is the chapter on surgical mensuration, although we think that elaborate instruments are out of place where the data—i.e., the bony points and axes—are so ill-defined as they must necessarily be in the living body. In the chapter on tuberculous diseases of the spine, treatment by means of the Taylor brace and other methods are adequately described, but heliotherapy and open-air treatment are only alluded to. Scoliosis is adequately dealt with. The chapters on diseases of the joints of the limbs, and of congenital dislocation of the hip present a good account of the usual American practice in the treatment of these conditions, but call for no particular notice. Infantile paralysis is discussed less fully than one expects in a text-book coming from America, where epidemics of that malady have been so extensive. The chapter on the deformities of the foot is disappointing. For instance, in the section concerning talipes calcaneus no clear distinction is drawn between the relative prognostic importance of the congenital and paralytic cases of this deformity, and operations for the relief of the latter are most inadequately described. The chapter on reconstructive surgery of the hand and the details given of the technique of tenoplasty are likely to be very useful. The illustrations are many and good and the work may be recommended as a text-book of the subjects included under its title.

Treatment by Artificial Pneumothorax.

La pratique du pneumothorax thérapeutique. Second edition. By F. Dumarest and P. Brette. Paris: Masson et Cie. 1923. Pp. 356.

Since the first edition of this work was published, certain important advances have been made in our knowledge of treatment by artificial pneumothorax, and the graduation of the intrapleural pressure to suit the needs of the individual case has of late received much more attention than it did. The general tendency is to use lower pressures. Another recent advance, to which these two authors have contributed not a little, is the distinction between the various kinds of pleural effusion, from the simple traumatic effusion at the one extreme, to the virulent tuberculous effusion at the other. With an experience of 15 years and between 200 and 300 cases, the authors are in a position to speak with authority, and it is interesting to note that in their selection of cases for this treatment they have learnt to be guided rather by the clinical course of a case than by the structural changes indicated by a physical examination. Such an examination may show but slight changes in the lungs. Yet the disease may be of a rapidly progressive character, and the patient acutely in need of that immobilisation which only lung collapse treatment can effect.

The authors refer in their introduction to the fact that in France, at any rate, opposition to this treatment has practically died down, its many permanent successes having given the lie to the objection that it was only palliative, scoring successes of a merely temporary character. The authors have obtained favourable results in 52 per cent., and after an observation period of more than ten years they were still able to claim favourable results in 23 per cent. They refer among other matters to the treatment, during and after pregnancy, of tuberculous women by a pneumothorax. While in Germany it is usual to induce abortion early in pregnancy when a woman is suffering from active tuberculosis, this procedure has found little favour in France where the more conservative measure of inducing a pneumothorax has frequently enabled the patient to go to term, giving birth to a healthy infant without suffering from an exacerbation of the disease. In their account of the technique of the operation, the authors reproduce numerous illustrations of the various pumps and needles in use. There seem to be almost as many different pumps and needles as there are physicians practising this treatment, but a close scrutiny of all this apparatus arouses the suspicion that the differences begin and end with the physicians' names. There is, however, a remarkably ingenious portable apparatus, associated with the name of A. Jousset, which looks as if the whole bag of tricks could be accommodated in a poacher's pocket. With regard to the old controversy as to sudden deaths being caused by gas embolism or pleural reflex, the authors are inclined to hold each of these causes responsible for a certain proportion of the tragedies of this treatment. But when they suggest that the accidents traced to pleural reflex are comparable with those of serotherapy, they fail to make their reasoning quite plain.

This book does not profess to be an exhaustive treatise on the subject, but embodying as it does the personal experiences of two physicians with a long and intimate knowledge of this treatment and of the recent literature, the book is of considerable value.

Psychotherapy.

Revised edition. By JAMES J. WALSH, M.D., Ph.D., Sc.D., Extension Professor, Fordham University. London and New York: D. Appleton and Co. 1923. Pp. 846. 30*s*.

Dr. Walsh opens with an interesting study of the history of mental healing and then passes to consider the body and mind in a manner which can be illustrated by the statement that "The will fails to reach the proper insulating plug of a neuroglia cell, which, if acted upon, would put a cell or group of cells in communication with others" (p. 128). Over 300 pages are given to the study of common ailments met with in general practice; here are considered digestive disturbances, cardiac disabilities both organic and functional, respiratory diseases (concerning which the neglected relation between asthma and pathological fears is demonstrated), the "rheumatisms," genito-urinary diseases, skin diseases, diabetes and exophthalmic goitre, and organic nervous disease. The general indications for psychotherapy are useful, but the author's ideas of therapy are disappointing. Suggestion, whether by newspapers, medical men, or relatives, is the beginning and end of his psychopathology; and his therapeutic directions are tedious in their repetitions. The need for reassurance, absence of worry, occupation of mind, neutralisation of unfavourable suggestions, self discipline and control of the mental attitude and of the nervous system are insisted on, and abundant platitudes leave the reader where he began.

It is in regard to purely mental troubles that we realise the emptiness of a therapy that takes no count of unconscious processes. Dr. Walsh quotes the case of an author suffering from claustrophobia: "He was returning from a vacation and was in the best of health and spirits, yet suddenly the feeling of inordinate dread that he was shut in came over him and he could scarcely control himself or keep from plunging out of the window in order to get into the open. . . . Unable to control himself any longer he got up and told me hoarsely that he was going to jump out of the train. . . . Happily the railway station was soon reached, when he rushed from the train and into the fields" (p. 617). The practitioner faced with the problem of treating such patients will gain little help from the advice that "Gradually, quietly, persistently, they must resist the dreads that come over them, must deliberately, without excitement, do the opposite to that suggested by their apprehension, until habits are formed that enable them to accomplish without discomfort what was before a source of serious ill-feeling" (p. 620). Keep your head above water and you will never drown. The handling of the defective child has no difficulties for our author. "The defective child must be made to realise that certain actions will surely be followed by painful punishment" (p. 742), and he demonstrates that the "subrational" needs more punishment than the rational. He seems to regret the decay of the practice of whipping hysterical patients (p. 805), and notes that the French military authorities revived this therapeutic measure in *torpillage* or the application of strong faradic currents. He concludes that "*Torpillage* . . . . is by its success the open sesame to proper understanding of the nature and therapeutics of hysteria." Dr. Walsh's book is not to be regarded as an exposition of modern American methods of psychotherapy.

Moral Problems in Hospital Practice.

By the Rev. PATRICK A. FINNEY, C.M., University of Dallas. London and St. Louis, Mo.: B. Herder Book Co. 1922. Pp. 208. 6*s*.

THIS is a work upon pastoral medicine written from a definitely Roman Catholic standpoint; that is to say, that the rules laid down for the conduct of medical men under certain conditions are those prescribed by Roman Catholic theologians. It is no part of our duty to comment upon such rules, and we refrain from so doing all the more in that we see that upon one matter at least—namely, the production of abortion in an incarcerated pregnant uterus—the Rev. Patrick Finney (p. 63) is in direct conflict with Dr. Capellmann, who lays it down in his work, "Medicina Pastoralis," p. 15,[1] that such procedure is indirect abortion and therefore lawful. But for those who feel bound by the regulations laid down by the Roman Catholic Church in such matters as abortion, sterilisation, craniotomy, ectopic gestation and the like, the book will be found valuable. It is clearly written under the form of questions and answers, which are given baldly in Part I., while in Part II. the questions and answers are repeated with a discussion and statement of the principles and reasons upon which the answers are based. Further, the book has a satisfactory index, glossary, and bibliography.

Manual and Atlas of Otology.

Lehrbuch und Atlas der Ohrenheilkunde. Fourth edition. By Prof. Dr. GUSTAV BRÜHL. Lehmann's Medical Hand-Atlases, Vol. XXIV. Munich: J. F. Lehmann. 1923. Pp. 487. 14*s*.

THIS bulky volume is printed in small type and, suffering somewhat from over-condensation, makes heavy reading. Condensation was, however, necessary if the book was to be kept within a reasonable compass, and perusal is well worth the effort it demands, for the book contains a very thorough and complete description of modern otological knowledge. The work begins with a full account of the anatomy of the ear, macroscopical and microscopical, and is provided with abundant illustrations; the physiology is treated comparatively shortly, Helmholtz's theory of audition is accepted in its entirety, and neither Gray's modification nor Wrightson's alternative theory is mentioned. The next section deals with methods of examination, and here the testing of the labyrinthine functions are well described. A chapter on general symptomatology and therapeutics is followed by a systematic discussion of the pathology and treatment of diseases of the ear under the headings of outer and middle and internal ears. Malformations, injuries, and tumours are described subsequently in separate chapters, instead of among the diseases of the several parts of the ear; this arrangement leads to some confusion and overlapping, and it is not easy to see why it was adopted. There are also chapters on deaf-mutism and neuroses, and finally discussions of the social aspects of ear disease, in its bearings on military service, life insurance, and workmen's compensation. A very complete table of contents compensates partially for an inadequate index. The illustrations are excellent, more particularly those in colour, which are a prominent feature of the book.

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[1] C. Capellmann: Medicina Pastoralis. Aquisgrani, MDCCCXC.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE.

Fifth edition. By E. M. BROCKBANK, M.D. Manch., F.R.C.P., Hon. Physician, Royal Infirmary, Manchester; Lecturer in Clinical Medicine, University of Manchester. London: H. K. Lewis and Co., Ltd. 1923. Pp. 232. 6*s.* 6*d.*

IN this, the fifth, edition of Dr. Brockbank's well-known handbook the chapters on clinical examination have been rearranged and extended. Several chapters have been added on the treatment of the common forms of illness in which the heart is affected. A chapter containing hints on the way to examine proposers for life insurance and on the interpretation of certain abnormalities in the circulatory system will be found especially useful in view of the author's long experience. We note that in Dr. Brockbank's opinion a stethoscope made of light wood, such as sycamore wood, gives the most delicate results in ausculation, but he admits that the binaural variety is often more convenient. The section of the volume dealing with heart sounds and murmurs is especially clear. For the rest, the popularity of previous editions of this little book among students and practitioners is likely to be maintained.

WHAT TO EAT IN HEALTH AND DISEASE.

By BENJAMIN HARROW, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. London: George Routledge and Sons. 1923. Pp. 203. 8*s.* 6*d.*

FEW branches of physiological knowledge have such an attraction for the layman as the subject of diet. Until quite recently, however, few if any reliable books have come forward to supply this demand for knowledge, and the subject of diet became a happy hunting ground for all varieties of cranks and quacks. It is different to-day, for now there is an almost bewildering profusion of popular books in which the layman can put complete confidence. The volume before us fulfils the necessary requirements of being simply written, accurate, and interesting. The placing of the chapter on the physiology of digestion at the end, instead of at the beginning of the book is an arrangement the desirability of which might reasonably be questioned, but the author draws attention to this by suggesting that some readers may prefer to read the last chapter first.

The book is intended as a guide for those who wish to know what to eat and why to eat it. But it is not merely this—it is also a reasonably complete account of the subject from the standpoint of the most recent work, including the experience gained by the study of war and post-war food conditions in Europe. Thus, the Pirquet system in which the nutritional value of the diet is measured in the new unit, the "nem" (1 c.cm. of milk = 1 nem), is discussed. The author has apparently a very decided leaning towards a reduction of the amount of meat in the diet, if not to frank vegetarianism.

DENTAL SURGERY AND PATHOLOGY.

Fifth edition. By J. F. COLYER, K.B.E., F.R.C.S., L.D.S., Consulting Dental Surgeon to Charing Cross Hospital. London: Longmans, Green and Co. 1923. Pp. 931. 32*s.*

THIS well-known text-book has held an almost unchallenged position in dental literature for many years. Numerous generations of students have been nurtured on it and to an unusual degree the views of its author are reflected in the teaching and practice of dentistry in this country. There are many excellent reasons for its vogue. It is clearly and concisely written, and the illustrations are ample and instructive. There is throughout a sound insistence on pathology. It embodies a great deal of original work. The teaching is dogmatic, yet there is a recognition that dogma is not always adequate, and that there may be another side to the matter under discussion. Perhaps the greatest merit of the book is the constant insistence that dentistry is a branch of general medicine and cannot be considered as a matter of teeth alone.

The general arrangement of the book follows that of previous editions. There are, however, certain changes. The description of operative procedure has been considerably curtailed. This is an undoubted improvement. Dentistry has grown so rapidly that one book is no longer adequate to cover fully the whole of dental surgery. The section on orthodontic technique is hardly a sufficient account of modern orthodontic methods. The chapters on malocclusion and their ætiology represent much original work and thought, though in many respects they run counter to current teaching.

The chapter on dental caries is a little disappointing. It is so good that we feel it ought to be still better. Reading it the student would gain the view that the ætiology and pathology of dental caries form practically a closed book. Perhaps the author thinks thus, but there are many observers who consider that there are yet chapters waiting to be written, and that we have much to learn about the pathology of dental caries. In the chapter on tumours of the jaw, a distinction is drawn between the myeloid epulis and the myeloma. According to M. J. Stewart,[1] there is no real difference between the two tumours which are equally examples of the myeloid sarcoma. There is a useful chapter on Local Anæsthesia by F. J. Steadman, and an instructive account of radiographic changes in chronic infection of the jaws by Stanley Colyer.

The popularity of this well-known book will be assured by the new edition.

THE ACTION OF ALCOHOL IN MAN.

By E. H. STARLING. With Essays by R. HUTCHISON, Sir FREDERICK W. MOTT, and RAYMOND PEARL. London: Longmans, Green and Co. 1923. Pp. 291. 12*s.* 6*d.*

Prof. Starling believes that if the abolition of all alcoholic beverages were enforced in this country against the wishes and convictions of a large proportion of the members of the community it would be little short of a calamity. Not only would it "not result in the long run in the improvement of national health and efficiency," but it would also "diminish that respect for the law, and that identification of self with the law which are essential for the stability and welfare of a democracy." Alcohol, an invention which he regards as probably synchronous with the birth of civilisation, has, in Prof. Starling's opinion, its chief value in "promoting repose and in affording a respite from the continual effort at adaptation to environment, and from the perpetual necessity of reconciling our personal advantage with the requirements of the society in which we live."

The book consists of 13 chapters by himself, in which he deals, in language addressed largely to the layman, with the fate of alcohol in the body, its action as a food, and its influence upon fatigue, digestion, circulation, respiration, and regulation of body temperature; with its action upon human behaviour and its influence on the community; with the effects of its "immoderate use," and with his conclusions drawn from the numerous experiments quoted. He is unable to find any evidence for the view so often expressed that the moderate use of alcoholic beverages is, in itself, harmful, and leads in the long run to the deterioration of health and of morality, but admits that its excessive use is the cause of a large amount of disease, crime, misery, and inefficiency. The worker will find that 12 c.cm. of alcohol contained in a glass of beer or a wine-glass of claret taken with lunch "will not interfere with the carrying out of his afternoon's work." The 35 c.cm. of absolute alcohol contained in half a bottle of light wine (claret or hock), in a pint and a half of ale, in 3 oz. of whisky (30 under proof), or in a quarter of a bottle of port, will undergo complete oxidation in the body within three and a half to five hours, so that if this amount is taken with the evening meal the alcohol will have disappeared from the blood and body tissues many hours before it is necessary to get up in the morning and begin the day's work. These quantities, consumed daily, will, in Prof. Starling's opinion, not interfere throughout adult life with bodily health and efficiency, whilst sufficing to produce the benefits and the increased pleasure in life which are the objects of the enjoyment of alcoholic beverages.

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[1] THE LANCET, Nov. 25th, 1922.

Dr. Robert Hutchison deals with alcohol as a medicine, in its aspects of a food in disease, an aid to digestion (e.g., in atonic dyspepsia), a tonic for "run-down" patients, a drug in disorders of the circulation and heart, and a sedative and hypnotic. Sir Frederick Mott treats of alcohol and its relations to problems in mental disorders, and characterises as misleading the statement, made by an extreme section of the temperance party, that 20 per cent. of admissions to asylums are directly or indirectly due to alcohol. Prof. Raymond Pearl's contribution relates to alcohol and mortality. He draws from a profusion of statistics the following conclusion:—The weight of evidence indicates that the consumption of alcoholic beverages "up to an amount and frequency which in common parlance is called moderate (the precise measure of this amount and frequency probably varying to some extent with each individual) does not sensibly shorten the mean duration of life or increase the rate of mortality, as compared with that enjoyed by total abstainers from alcohol."

Nowhere in the book is there any attempt to balance the cheerfulness and sociability engendered by the week's beer against the desirability of, say, the repair of a child's boots.

SCIENCE AND CIVILISATION.

Essays arranged and edited by F. S. MARVIN. The Unity Series, Vol. VI. Oxford University Press. 1923. Pp. 350. 12*s.* 6*d.*

"SUMMER schools" are of comparatively recent growth. Mr. Marvin started the first of these "Unity History Schools" in 1915, in the congenial atmosphere of the Friends' Settlement at Woodbrooke, when papers and discussions centred round the unity of western civilisation. The seventh, dealing with art and civilisation, was held this year in Vienna. The present volume is a record of the more permanent parts of the sixth conference, and contains a dozen essays grouped round the central theme. As might be expected from anything arranged by the author of "The Living Past," the note through the whole series is the continuousness of human experience and progress. The past is not an archæological curiosity but an integral part of the present, because the present is its derivative. And through this volume, as through its predecessors, runs another character which has commended them to so many diverse readers—the note of cheerful hopefulness for the future. If, for example, Greek mathematics have done so much for us in the past 2000 years, may not their products reasonably be expected to do as much again for us in the future? The argument throughout is that the past is alive, and may be presumed to be going to propagate itself in the future. It is impossible to deal with the essays individually. Those on "Ancient Medicine," by Dr. Charles Singer, and on "Science and Health," by Dr. F. G. Crookshank, are of more immediate professional interest, and it is a sign of the times that the grandson of Thomas Henry Huxley contributes one on "Science and Religion." Dr. Crookshank's discourse is particularly worth attention, and medical men would do well to respond to his invitation to think seriously as to what they really mean by a "disease." But the volume should be read as a whole. It will prove a most useful purge to those who see in "science and civilisation" nothing but the progress of our materialistic control over nature.

JOURNALS.

JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE. In the last issue Surg.-Commander J. H. Fergusson states that sulfarsenol, introduced by Surg.-Commander Laurence Kilroy[1] to the Mediterranean Station, has been there under trial for two years, and is strongly approved because it can be given, with ease and safety and painlessly, by subcutaneous injection, therefore anywhere and immediately, so that treatment can be commenced the moment the sore is seen, before the infection is generalised, and the Wassermann becomes positive. Besides, it produces results at least as good as any other drug. Hundreds of cases have been treated with it without complications (only one case of jaundice and one of dermatitis are quoted). It causes so little trouble that it can be given to all cases of chancroid, and thus even the unsuspected cases of syphilis—there are some—are aborted at once. And if doubtful cases can be cured thus easily and without fail, why wait?—Surg.-Commander G. B. Scott, the genito-urinary specialist of the same fleet, recommends that a chancroid with 12 days' incubation be given sulfarsenol, and 4 (not 2) g., and two full courses, not one, for the man who has had a positive Wassermann. He discourages the use of mercury: "Why fiddle about with bad tools when better are available?"—Surg.-Commander H. E. R. Stephens reports a case of fracture of the erected penis. The patient during intercourse heard and felt the penis snap. Erection was at once lost, and the penis began to swell up. When he complained it was found there was a rounded swelling in the left corpus cavernosum, the whole of the penis and scrotum were black, the distal part of the penis was turgid and stiff, the proximal supple; only the glans was not swollen and still pink. After 12 days the general effusion was completely absorbed, but the lump persisted, and there was loss of function of the organ. An incision was made over the swelling and the clot was turned out; one artery required ligature, and the tunica albuginea was sutured. Recovery was rapid and full functional activity was regained.—Surg.-Commander W. H. Edgar tells us that he has had considerable experience of the trying complaint "tennis elbow," which he ascribes to a localised myositis of the extensors of the forearm and wrist, at their origin from the external condyle, and from the thin bony ridge which runs upward therefrom; on the myositis a periostitis supervenes. The trouble is due to the prolonged strain of the extensors of the wrist in the act of grasping the racquet. It also occurs in men who do not play tennis but have to hold small-handled tools, as in cutting off rivets with a small hand-hammer, or, the same muscular action, in wood-sawing. Other games than tennis make no such prolonged call on the grip of the right hand. When the patient complains it will be found that the pain is at once located in the external condyle if he be asked to clench his hand. To avoid this condition, play with a light racquet, and one with a thin handle, massage the extensors after each day's play, and avoid "rubber grips." In treatment, diathermy is very beneficial, also the galvanic current, with or without ionisation.—Dental fitness being very important, teeth are not to be extracted if they can be preserved, and dental officers are to give monthly lectures on oral hygiene, to be illustrated by lantern slides. These lectures to be optional to men generally, except to new entries, who will be required to attend.—A gold medal is now given annually to that member of the sick berth staff who has most distinguished himself by the exhibition of zeal and efficiency in the discharge of his duties during the preceding year. This year it was won by Sick Berth Petty Officer J. T. Forest.

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[1] THE LANCET, 1921, ii., 1384.

THE WORK OF THE TUBERCULIN DISPENSARY LEAGUE.

We publish below the report to the Tuberculin Committee of the Medical Research Council on the work of the Tuberculin Dispensary League, Chelsea, with some introductory remarks from the Council, whose sanction, as well as that of the Ministry of Health, has been obtained for the publication.

Introductory Remarks from the Medical Research Council.

In July, 1919, members of the committee of the Tuberculin Dispensary League, Chelsea, addressed a letter to the Right Hon. Christopher Addison, M.P., M.D., then Minister of Health, requesting that he would cause an inquiry to be made into the work done at the Tuberculin Dispensary, Chelsea, with a view to increasing the number of tuberculin dispensaries and to making known the use of tuberculin as practised by Dr. Camac Wilkinson. It was urged by the committee that the economy and efficiency of the methods at this dispensary called for their adoption generally, and that the number of cases cured at Chelsea warranted the demand of the committee for an inquiry. This request was referred by the Minister of Health to the Medical Research Council, on whose behalf a committee was already engaged in research work upon tuberculin and in the study of its uses for diagnosis or treatment.

The Medical Research Council thereupon invited the committee of the League to state the nature of the evidence which the committee had at their disposal for judging the results of the methods of tuberculin treatment upon which they had addressed Dr. Addison. At various subsequent dates the committee of the League submitted (*a*) testimonials to the value of Dr. Camac Wilkinson's treatment from a number of patients and their friends or medical attendants; (*b*) reports on seven cases by the dispensary nurse; and (*c*) a short summary of the results of treatment of 71 cases in 1910–1912. Of these 71 cases 13 had been lost sight of, and of the remaining 58 cases 24 per cent. were dead, 26 per cent. were unimproved, and 50 per cent., of whom many had had other forms of treatment in sanatoria or elsewhere, were said to be improved.

The Medical Research Council in March, 1920, wrote to say that in their opinion the evidence submitted did not appear to justify the demand of the dispensary committee for a special inquiry into the work done there by Dr. Camac Wilkinson. They expressed the opinion that only the careful and unbiased collection of accurate records can serve to establish the merits of a given treatment, and that no public or private advocacy of a course of treatment is justified unless it be based on that foundation. Mr. Randall Davies, treasurer of the League, thereupon explained that the data submitted to the Council were only "samples and summaries somewhat hurriedly collected," and said that full and accurate records had been kept of every case treated. He expressed his personal regret for the misunderstanding and for the time spent upon the data now withdrawn. The Council replied that they were still willing to arrange for an unbiased study of the methods and results shown in the system of records now mentioned, if these were substituted for the imperfect records previously submitted.

After the lapse of three months the Council were informed (August, 1920) that the records were ready for examination. They were then able to invite the Tuberculin Committee of the Council to undertake the inquiry. The committee delegated the details of the investigation to three of its members—namely, Dr. G. T. Western, physician-in-charge of the Inoculation Department of the London Hospital; Dr. L. S. T. Burrell, physician to the Brompton Hospital for Consumption and Diseases of the Chest; and Dr. A. S. MacNalty, a medical officer of the Ministry of Health. From December, 1920, these investigators devoted much time to the inquiry and the drafting of a report. Their work was entirely unremunerated and was undertaken for the Tuberculin Committee solely in the interests of scientific truth. It was understood from the outset that Dr. Camac Wilkinson himself desired to be dissociated personally from the inquiry. To avoid any further misunderstandings the report was submitted to the treasurer of the League for discussion with Dr. Wilkinson before its final adoption by the Council and transmission to the Ministry of Health. As a result, some modifications were made by agreement in details of the report. The report was adopted by the Medical Research Council, who, on July 20th, 1921, transmitted copies to the League and to the Ministry of Health.

The chief conclusion drawn by the sub-committee and by the Council was "that the method of tuberculin administration advocated by the Tuberculin Dispensary League does not appear to have claims over other methods of treating tuberculosis, either with or without tuberculin, which would justify its general adoption." The report was not published, and in the absence of any expressed desire by the Tuberculin Dispensary League for its publication it was regarded as a confidential document. Neither the committee of the League nor Dr. Camac Wilkinson had up to that time expressed any opinion unfavourable to the capacity or experience of those who undertook the inquiry or to the painstaking fairness with which it was conducted. Dr. Wilkinson, however, has recently published a brochure entitled "The Tuberculin Dispensary for the Poor,"[1] in which he complains of the perfunctory character of the inquiry as conducted by the Medical Research Council. Mr. Randall Davies in a preface to the pamphlet gives an incomplete selection from his correspondence with the Council.

It may be noted here that it was not until after the report had been completed that the investigators were informed that they could have had the opportunity of examining all the available living patients included in the medical records submitted to them. In the course of the inquiry they were told that Dr. Wilkinson, as a concession, would permit the members of the sub-committee to visit the tuberculin dispensary and to see the actual work in progress, but that he did not desire to enter into any discussion with them in regard to the objects of their inquiry. They availed themselves of this permission and saw a series of cases which Dr. Cooke, an assistant medical officer of the dispensary, had assembled for their inspection. They naturally, however, rigidly observed the conditions upon which they were allowed this privileged visit to the dispensary.

In view of the publication of Dr. Wilkinson's pamphlet, the Council have now consented to the publication of their report in The Lancet. They publish it not because they or the members of the Tuberculin Committee are willing to enter into further discussion with the League or Dr. Wilkinson on the subject-matter of the report, but only to allow correction of the erroneous impressions conveyed in the pamphlet.

Report to the Tuberculin Committee of the Medical Research Council on an Examination of the Data Submitted by the Tuberculin Dispensary League, Chelsea, in Relation to the Treatment of Tuberculosis by Tuberculin.

The following document has been received, in answer to our request and with the sanction to publish of the Ministry of Health, from the Medical Research Council:—

At a meeting of the Tuberculin Committee of the Medical Research Council held on Dec. 7th, 1920, three members of the subcommittee, Dr. G. T. Western, Dr. L. S. T. Burrell, and Dr. A. S. MacNalty were appointed to investigate the data submitted by the Tuberculin Dispensary League and to report thereon to the Committee. We entered upon the nvestigation on Dec. 21st, 1920, and now submit our report. At the outset we desire to express our thanks for the assistance afforded to us in our investigation by Dr. Camac Wilkinson, Dr. Cooke, and Mr. Randall Davies, hon. treasurer of the Tuberculin Dispensary League.

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[1] London: Nisbet and Co., Ltd. 1923. Pp. 67. 1s.

1. *Method of Investigation.*

We have examined the case-records and temperature charts of 147 cases treated under the auspices of the Tuberculin Dispensary League; 40 cases were, however, eliminated from detailed consideration as they were records of patients who for one cause or another discontinued treatment at the dispensary and did not undergo full courses of treatment. We conferred with Dr. Cooke, assistant medical officer at the Tuberculin Dispensary, Chelsea, in regard to the method and duration of tuberculin administration and the notes made in the case-records, and on Monday, Feb. 7th, 1921, we visited the Tuberculin Dispensary at Chelsea and saw the method of treatment in progress. We have also read the works "Tuberculin in the Diagnosis and Treatment of Tuberculosis," by Dr. W. Camac Wilkinson, and "Studies in Pulmonary Tuberculosis," by Dr. F. G. Griffiths, both of which deal with the special method of tuberculin treatment now under consideration.

2. *Description of the Method.*

The tuberculous patient is treated with tuberculin as an out-patient. He attends at the Tuberculin Dispensary which is open twice a week. The patient is given a clinical thermometer and instructed how to take his own temperature at four-hourly intervals in a day of 16 hours. At his first attendance he is clinically examined. In doubtful cases or in cases in which no evidence of tuberculosis has been previously obtained the patient is given an injection of old tuberculin (0·001 c.cm. up to 0·01 c.cm.) for purposes of diagnosis. If the temperature transiently rises to 100°, 101°, or even 105°, he is considered a positive case of tuberculosis. If there is no reaction the patient is considered non-tuberculous. It should be emphasised, however, that all the cases submitted to our inquiry were stated to have had tubercle bacilli present in the sputum at one time or another during the period of treatment, although in a certain number of cases the tuberculin test had been applied for purpose of diagnosis before the result of the bacteriological test was known. It does not therefore come within the scope of our inquiry to express any opinion as to the accuracy of the tuberculin test in the diagnosis of cases of tuberculosis. If the patient's temperature initially exceeds 99·6° F., he is told to take his temperature regularly for a week in order to see if he is a suitable subject for treatment. Practically, however, the only contra-indications recognised appear to be the presence of acute or chronic renal disease.

The tuberculins employed in treatment have been P.T.O., P.T., O.T., and T.A.F., and in certain cases B.E. (Meister, Lucius, and Brüning) latterly, owing to difficulty in obtaining these tuberculins P.T.O. (Burroughs, Wellcome) and P.T. (Meister, Lucius, and Brüning) have been employed. The treatment begins with P.T.O., then proceeds to P.T., and finally old tuberculin is used. Dr. Camac Wilkinson describes the technique as follows: "If one begins with 0·001 c.cm. or 0·0001 c.cm. and proceeds to a final dose of 1 c.cm. to 2 c.cm. of O.T. the final dose is literally a quarter of a million to two million times as potent as the first dose. To reach this large dose one proceeds by gradual increases, avoiding, as far as possible, reactions much above 100°. To measure the small doses one requires a 1 c.cm. syringe, a pipette of fine calibre on which one can measure off 1/10th c.cm. and the ordinary diluting fluid (normal saline, containing ½ pint per cent. carbolic acid). After marking with ink the point of the pipette, which measures 1/10th c.cm., one passes the ink-mark through the flame to fix it. By my plan it is usually necessary only to make one dilution, that of P.T.O. in the strength of 1 in 10. This dilution of 1 in 10 is made by putting one part of P.T.O. in a sterilised watch glass and adding to it nine times the quantity of the diluting fluid (normal saline with ½ per cent. carbolic acid). Then, in order to measure 1/1000th c.cm. of P.T.O., one merely takes in the pipette a column of this diluted fluid equal to 1/10th part of the column, which represents 1/10th c.cm. If one wishes to measure 1/10,000th c.cm. (·0001 c.cm.) one must make a first dilution of 1 in 100 instead of 1 in 10" ("Tuberculin in the Diagnosis and Treatment of Tuberculosis," W. Camac Wilkinson, London, 1912, p. 429). The dose of tuberculin is given by a Koch's syringe graduated in 1/10th and 1/20th c.cm. and is usually injected into the upper arm on the outer side. Dr. Camac Wilkinson lays stress upon the fact that due aseptic precautions should be observed in giving the injection and informed us that no local septic complications had ever occurred in his experience. A square of sterilised court plaster is placed upon the site of injection. The technique as described above appears to us to be unsuitable for general adoption as it is somewhat crude and cumbersome.[2]

After the course has been completed, that is, when the dosage of tuberculin has reached 1 c.cm. or 2 c.cm., treatment is stopped and the patient is advised to attend the dispensary from time to time for re-examination. If the patient subsequently has a relapse as evinced by sputum and pyrexia he goes through another rapid course of tuberculin. Such a course might commence with 0·01 c.cm. O.T. up to 0·5 c.cm. O.T.; then proceeding to 0·015 c.cm. B.E. terminating with 0·5 or 0·6 c.cm. B.E. The aim is to produce "so big a general reaction that the patient cannot bear any more tuberculin" (statement of Dr. Cooke). The doses of tuberculin are given every third day or twice a week.

The course of tuberculin treatment usually occupies a period of six months to nine months; in some instances the course takes 9 to 12 months. The actual cost of tuberculin is about £2 2*s*. a course.

* If "a general reaction" occurs in the course of treatment, by which Dr. Camac Wilkinson means a rise of temperature up to 99·4° F., the same dose is repeated on the next occasion.

* If the rise of temperature, however, exceeds 99·4° F. a week is allowed to elapse and the last dose is repeated. As a rule, no "reaction" follows on the repetition of the dose. It is held that doses have to be given frequently and in increasing amounts in order to obviate anaphylaxis. In Dr. Cooke's experience Dr. Camac Wilkinson has not had more than four or five cases of anaphylaxis.

* Dr. Cooke mentioned that occasionally cases of extreme "hypersensitiveness" to tuberculin occurred in which a rise of temperature (a reaction) occurred after each repetition of the dose of tuberculin. In these cases the dose is reduced; small doses are given every day and then the course of treatment is continued.

It is not clear in what way such cases of "hypersensitiveness" to tuberculin differ from those of anaphylaxis.

3. *Cases Suitable for the Tuberculin Treatment.*

Practically every form of tuberculosis has been treated by Dr. Camac Wilkinson's method. He states that cases of lupus do not do well with tuberculin, and that mixed infections are not susceptible to treatment by tuberculin; rather their presence contra-indicates its use. In the practice of the dispensary, however, cases of pulmonary tuberculosis apparently in an advanced stage of the disease and with the high or intermittent type of pyrexia which Dr. Camac Wilkinson regards as characteristic of mixed infections have been treated with tuberculin, and in certain of these cases the condition appears to have been ameliorated. Dr. Wilkinson estimates that adopting the Turban-Gerhardt classification of cases of pulmonary tuberculosis treated by tuberculin on his method 80 per cent. of cases in Stage I. and Stages I.–II. are improved by the treatment, and 60 per cent. of cases in Stage II. derived benefit from it. This estimation apparently takes into consideration a number of cases classed as tuberculous on the results of the tuberculin diagnostic test. The above figures do not appear to be in advance of those which may be obtained by other methods of treatment either with or without tuberculin.

4. *Description of the Case-Records.*

The case-records submitted for our inspection consist of brief notes of the clinical examinations made on a case-sheet and temperature charts made from temperature records kept by the patients themselves; upon the charts the doses of tuberculin and the kind of tuberculin administered are noted by the medical officer of the dispensary. A record of the weight of the patient is also kept. It is stated in every case that tubercle bacilli have been found in the patient's sputum in the early stages of treatment by tuberculin. In a certain number of cases the report had not been received at the initiation of the treatment or no sputum was available at the time. In such cases the treatment was commenced on the positive results of the diagnostic test of tuberculin, the presence of tubercle bacilli in the sputum being subsequently ascertained. The examinations for tubercle bacilli in the sputum are not made at the dispensary, but the specimens of patients' sputa are sent to the medical officer of health of the local authority in whose area the patients reside, who examines and reports upon the specimens. We observed that in the majority of cases the actual report made by the medical officer of health was not annexed to the case-papers, but the circumstance that tubercle bacilli were present was recorded on the clinical case-sheet.[3]

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[2] Dr. Wilkinson states that the technique as described was used by him in Australia 12 years ago, but that it has long since been superseded by an improved technique. According to the information furnished to us by Dr. Cooke the technique conducted at the tuberculin dispensary is as described in our report.

* Dr. Wilkinson states that the paragraphs marked with an asterisk are inaccurate and misleading. The statements therein were furnished to us in reply to our questions to Dr. Cooke. We were given to understand that Dr. Cooke was fully acquainted with the methods of Dr. Wilkinson and had had several years' acquaintance with his practice.

In only a limited number of cases are the results of subsequent examination made for tubercle bacilli recorded, and we should have preferred to see reports on the sputum made more frequently and a statement as to the presence or absence of tubercle bacilli in the sputum made at the termination of each course of treatment. This latter statement is only furnished in a minority of cases. The clinical details supplied in connexion with the cases are meagre. We append a specimen of the clinical case-sheet which is in use at the Tuberculin Dispensary. This case-sheet is not used for all the cases submitted to us. In lieu thereof a brief note as to the condition of the patient on initial examination is given. Patients attending the dispensary have the history of their illness recorded and a note is made as to the physical condition, state of the disease, and signs present at the initial examination. Each patient

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[3] This statement is made for the purposes of accuracy, and we have not desired in any way to imply that we doubted the fact that tubercle bacilli were present in every case submitted to us in the investigation.

TABLE I.—*Detailed Analysis of Cases in Stage I. of Pulmonary Tuberculosis.*

No.	Name of patient.	Age.	Duration of treatment.	Initial dose in c.cm.	Final dose in c.cm.	Initial weight.	Final weight.	Stage of disease.	Remarks.
1	F. B.	18	9/6/1912–8/3/1913	0·005 P.T.O.	0·65 O.T.	10 st. 2½ lb.	9 st. 12½ lb.	I.	Medically examined twice. Went to Australia.
2	E. B.	22	13/12/1912–22/2/1915	0·005 P.T.O.	1·0 O.T.	7 st. 1 lb.	7 st. 4½ lb.	I.	Examined three times.*
3	J. B.	57	26/5/1911–23/12/1912	0·005 P.T.O.	0·1 O.T.	11 st. 11½ lb.	13 st. 5 lb.	I.	Given 0·001 c.cm. old T. and then 0·005 c.cm. for diagnosis, –7 reaction 100° F. Slight p.s. one apex.
4	F. By.	43	30/1/1913–15/6/1913	0·005 P.T.O.	1·0 O.T.	7 st. 7½ lb.	7 st. 9 lb.	I.	Examined once at onset, O.T. test. No note of details of final examination, but said to be apparently quite well.
5	Mrs. C.	22	6/6/1910–19/2/1915	0·005 P.T.O.	0·03 O.T.	8 st. 2 lb.	9 st.	I.	Three examinations. Disease extended. "Very well, September, 1920."
6	S. J.	23	18/10/1912–7/4/1913	0·005 P.T.O.	1·0 O.T.	7 st. 6 lb.	7 st. 6¾ lb.	I.	Brompton Hosp. T.B. became absent. Died Nov. 16th, 1916, kidney disease and pneum. (?).
7	Mrs. J.	33	5/6/1910–25/7/1911	0·005 P.T.O.	0·425 O.T.	7 st. 10 lb.	7 st. 11⅞ lb.	I.	No details of second examination July, 1920.
8	A. L.	30	12/9/1912–27/10/1913	0·005 P.T.O.	1·0 O.T.	10 st. 11 lb.	11 st. 6½ lb.	I.	Details of second examination, "keeping well"; July, 1920, second course of tuberculin; no details in 1913.
9	W. M.	39	9/1/1913–10/10/1914	0·005 P.T.O.	0·2 O.T.	13 st.	12 st. 7 lb.	I.	Increase in p.s.; hæmoptysis June, 1920. "Keeping well."
10	R. P.	14	30/4/1912–21/8/1919	0·005 P.T.O.	3·0 O.T.	5 st. 13 lb.	9 st. 1¾ lb.	I.	Well and at work 1920.
11	M. R.	25	20/5/1912–7/11/1912	0·005 P.T.O.	1·0 O.T.	8 st. 13½ lb.	9 st.	I.	O.T. test. Went abroad and lost sight of; no record of second examination; hæmoptysis.
12	M. S.	26	5/7/1912–12/5/1915	0·005 P.T.O.	1·0 O.T.	6 st. 3 lb. 12 oz.	6 st. 4½ lb.	I.	Several courses. August 4th, 1920, still stage I.; both lungs. Further short course, O.T. test.
13	J. S.	15	29/11/1912–10/2/1913	0·005 P.T.O.	0·575 P.T.O.	6 st. 8½ lb.	7 st. 7 lb.	I.	No details of subsequent examination; hæmoptysis; O.T. test.
14	K. W.	21	8/8/1912–10/3/1914	0·005 P.T.O.	1·0 O.T.	7 st. 10¾ lb.	8 st. 2 lb.	I.	T.B. absent in course of treatment. Lost sight of.
15	G. W.	?	12/5/1911–23/2/1912	0·075 P.T.O.	1·6 T.A.F.	9 st. 13 lb. ¾ oz.	9 st. 7 lb.	I.	Previous treatment at Knightwick Sanatorium. No record of physical examination.
16	J. Y.	21	20/1/1913–8/9/1913	0·005 P.T.O.	1·0 O.T.	11 st. 1¾ lb.	11 st. 11¾ lb.	I.	No details of subsequent physical examination. Went to Sydney, "well," 1917.

* In the draft report we stated we judged from the notes of this case that the disease from early infiltration progressed to cavities in both upper lobes, and that the patient was therefore in stage III. of tuberculosis at the end of treatment. Dr. Wilkinson maintained, however, that the patient was still in stage I. and that we had mistaken the rough delineation of the affected area for cavities. As mentioned in the text of the report, the cases considered have been classed according to the stage of disease in which they are in at the beginning of the course of tuberculin treatment. This stage is not necessarily the one in which the patient should be grouped at the termination of treatment and, from the evidence of the notes, it was apparently not so in this particular case. In deference, however, to Dr. Wilkinson's protest we eliminate the comment from the published report.

TABLE II.—*Classification of 107 Patients who have Undergone the Complete Course of Tuberculin Treatment, According to the Stage of Pulmonary Tuberculosis at Onset of Treatment and the Year in which they Commenced Treatment: Their Subsequent Fate Being Recorded in Ensuing Years up to 1920.**

Stage (Turban-Gerhardt classification) of commencement of tuberculin treatment.	Year of commencement of treatment.	No of persons treated.	Fate of persons undergoing treatment in subsequent years. (A = alive; D = dead.)																	
			1912		1913		1914		1915		1916		1917		1918		1919		1920	
			A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D
Stage I. ..	1910	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	1911	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	1912	10	—	—	2	—	1	—	1	—	—	1	—	—	—	—	—	—	5	—
	1913	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
Stage II. ..	1911	13	1	1	1	2	—	—	—	1	—	—	—	—	—	—	—	—	7	1
	1912	21	1	—	—	2	—	3	3	—	—	1	1	—	—	2	—	—	8	—
Stages II.–III.	1910	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	1911	14	1	3	3	1	—	1	1	2	—	1	—	1	—	—	—	—	—	—
	1912	12	—	1	1	1	—	2	1	—	—	1	—	—	—	—	—	1	4	—
Stage III. ..	1910	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
	1911	9	1	4	1	—	1	—	—	1	—	—	—	—	—	—	—	—	1	—
	1912	20	—	1	3	3	1	9	2	—	—	—	1	—	—	—	—	—	—	—
All stages of disease.	Period 1910–1913	107	6	10	11	8	3	16	8	4	—	4	2	1	1	2	—	2	28	1

Total of patients alive in 1920	28
,, ,, dead by 1920	48
,, ,, lost sight of by 1920	31

* A certain number of patients who for one cause or another did not complete the tuberculin course are not included in this table.

TABLE III.—*Classification of 100 Patients in Stages of Pulmonary Tuberculosis, according to Sex and Age.*

(1) MALES.

Stage of pulmonary tuberculosis.	10–	15–	20–	25–	35–	40–	45–	50–	55–	60–	65–	Total all ages.
I.	1	2	1	—	1	—	—	—	1	—	—	6
II.	1	1	5	5	1	3	1	1	—	1	1	20
II.–III.	—	—	3	7	1	5	3	—	—	—	—	19
III.	—	—	2	5	4	3	2	2	—	—	—	18
Total ..	2	3	11	17	7	11	6	3	1	1	1	63
(2) FEMALES.												
I.	—	—	4	4	—	1	—	—	—	—	—	9
II.	—	—	2	6	3	2	—	—	—	—	—	13
II.–III.	—	1	1	2	1	—	—	—	—	—	—	5
III.	—	1	1	7	1	—	—	—	—	—	—	10
Total ..	—	2	8	19	5	3	—	—	—	—	—	37
(3) MALES AND FEMALES.												
I.	1	2	5	4	1	1	—	—	1	—	—	15
II.	1	1	7	11	4	5	1	1	—	1	1	33
II.–III.	—	1	4	9	2	5	3	—	—	—	—	24
III.	—	1	3	12	5	3	2	2	—	—	—	28
Total ..	2	5	19	36	12	14	6	3	1	1	1	100

on an average appears to be only once or twice clinically examined during the course of treatment. It may be that the patient has beer more frequently examined, but if so the results of such examination have not been recorded on the case-papers. We should have preferred to have seen a careful and complete record of the physical condition present in each patient at the termination of the course of tuberculin treatment. In a number of cases there is no record of the patient having undergone such an examination. Instead the statements are made that "the patient is keeping well," or "is apparently quite well," or "is well and at work" at the termination of a course of treatment.

With regard to the temperature records, the temperatures have been taken and recorded by the patients themselves four-hourly. This procedure, inevitable, however, for the dispensary method of treatment, is not free from the criticism that the patient may make an erroneous record or that his anxiety to appear to be doing well may lead him to record a lower temperature than that given by his thermometer. In certain of the charts also there are gaps, the patient forgetting to take his temperature or being away, and not recording his temperature for a number of days. The doses of tuberculin given are clearly shown on the charts, but in a number of cases the patient has had several successive courses of treatment, and we have experienced some difficulty occasionally in differentiating between a second rapid course of tuberculin and a prolonged single course of tuberculin treatment. The absence of full and concurrent clinical notes on the progress of the case has further hampered us in the detailed examination of the temperature charts.

We cannot refrain from the criticism that on the grounds stated above the evidence furnished by the case-records is not so full and complete as is desirable to satisfy a scientific tribunal, and that in the majority of the cases submitted to us the claim that the patient has improved or is "well" as the result of treatment depends upon the statement to this effect of the medical officer in charge of the case and is unsupported by detailed clinical evidence. Many of the temperature charts exhibit high reactions after the injection of the dose of tuberculin and in certain cases, notably those of C. (Stage II.–III.) and B. (Stage III.) the injections of tuberculin appear to have led to the disease becoming extremely active with a rapidly fatal issue.

Clinical Examination of Patients.

Dr. Camac Wilkinson kindly arranged for us to see several cases of tuberculosis which were undergoing or had undergone treatment with tuberculin at the Tuberculin Dispensary. We saw and examined 12 cases suffering from either pulmonary tuberculosis, laryngeal tuberculosis, or tuberculous glands. In three of the cases the disease appeared to be quiescent; these cases were of the chronic fibrosed type such as may be seen in any out-patient department for tuberculosis. In others the disease appeared to be still active. Although this activity was indicated by the progress and character of the pulmonary signs, dyspnœa, increased pulse-rate, and other constitutional symptoms, yet these patients appeared to have been educated by increasing doses to tolerate large doses of tuberculin without manifesting a reaction in temperature. In such cases, therefore, the patient appeared to be immunised against the effects of large doses of tuberculin rather than against the effects of his tuberculous lesion.

5. *Analysis of the Records.*

(Number of cases, 107.)

The cases have been grouped according to the Turban-Gerhardt system of classification into three stages; the patient is classed, according to the stage of disease which he is in at the beginning of the course of tuberculin treatment. As already observed, the clinical notes are not copious enough to determine the patient's stage of disease at the end of the period of treatment in every case. In all the cases tubercle bacilli were stated to be present in the sputum.

Number of Patients Treated in Each Stage of the Disease (total, 107).

Stage I.	16	Stages II.–III. ..	27
Stage II.	34	Stage III.	30

Longevity of Cases.

The 107 patients reviewed by us commenced treatment in the years 1910, 1911, 1912, and 1913; 4 patients commenced treatment in 1910, 37 patients in 1911, 64 patients in 1912, and 2 patients in 1913. The majority of the patients therefore commenced treatment in the years 1911 and 1912. In Table II. (Appendix) 107 patients commencing tuberculin treatment in the period 1910–13 have been classified according to the stage of disease and the years in which they commenced treatment, their subsequent fate, whether alive or dead, being recorded in ensuing years up to 1920.

The table may be summarised thus with regard to the fate of these 107 cases as ascertained by the year 1920. Of 16 cases in Stage I., treated in 1910–13, in 1920, 8 were known to be alive, 1 to be dead,[4] and 7 were lost sight of. Of 34 cases in Stage II. treated in 1911–12, in 1920, 15 were known to be alive, 13 to be dead, and 6 were lost sight of. Of 27 cases in Stages II.–III. treated in 1910–12, in 1920, 4 were known to be alive, 16 to be dead, and 7 were lost sight of. Of 30 cases in Stage III. treated in 1910–12, in 1920, 1 was known to be alive, 19 were dead, and 10 were lost sight of. Of 107 cases in all stages of the disease treated during the period 1910–13, in 1920, 28 were known to be alive, 48 were dead, and 31 were lost sight of.

These figures cannot be said to demonstrate any striking influence of tuberculin upon longevity. The cases that live longest are those in which the disease is recognised earliest, which corresponds with the usual figures of longevity in tuberculosis, quite apart from any special method of treatment. In 100 of the patients figures are available as to age and sex. There were 63 males and 37 females. Of known survivors in 1920, 18 are males and 10 females, 10 males being over 35 years of age at the initiation of treatment and 5 females over 35 years of age. This mature age of the majority of the survivors suggests a chronic fibrosed type of case which, in ordinary circumstances, usually survives for a considerable length of time, and this suggestion appears to be supported, so far as the records indicate, by the clinical description of the cases. From this aspect, again, we fail to find any preponderating influence played by tuberculin treatment in prolonging the life of patients. Analysis of the figures therefore furnishes little justification for the claim that by this tuberculin method of treatment the lives of patients are prolonged to a far greater extent than by other methods of tuberculosis treatment.

It is within the experience of all of us that patients suffering from pulmonary tuberculosis with tubercle bacilli in their sputum or patients suffering from genito-urinary tuberculosis with tubercle bacilli persisting in the urine may live with other forms of treatment for a considerable period of years.

Conclusions.

1. The evidence submitted by the Tuberculin Dispensary League as to the results of the treatment of tuberculosis by tuberculin is not so full and satisfactory as is desirable in an investigation of this character. The cases are limited in number and the clinical evidence supplied in relation to them is meagre.

2. There is no doubt that this method of tuberculin administration succeeds in immunising patients to large doses of tuberculin, but there is no evidence that it also immunises them to tuberculosis. Indeed, there is distinct evidence to the contrary, for the majority of patients after an initial course of tuberculin treatment have manifested signs of active tuberculosis and have had to undergo subsequent courses of tuberculin treatment. Also, certain patients in the intermediate stage of tuberculosis have died with signs of active disease, although they had recently tolerated large doses of tuberculin.

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[4] This patient is stated to have died four years after treatment of nephritis and pneumonia.

3. The most favourable results relate to the 16 cases in Stage I. (Turban-Gerhardt), of whom only one is known to be dead, while eight were stated to be alive and well in 1920 (Table II.). In stating this we cannot assume that the patients were treated solely by tuberculin and underwent no other special method of treatment, for one patient is specifically stated to have undergone treatment at Knightwick Sanatorium and another was an in-patient at Brompton Hospital. There is reason to believe also that a certain number of patients who attended the Tuberculin Dispensary have at one time or another been under treatment at various institutions where they have learned the various forms of hygienic treatment of their disease. In the intermediate and advanced stages of the disease the results of tuberculin treatment are less favourable and therefore the recognition of tuberculosis in the early stage and the placing of the patient under hygienic conditions of life probably rank as equal with, or more important factors than, tuberculin treatment alone in the arrest of the disease. Also, the number of cases in the first stage (16) is too few to enable a general conclusion to be drawn as to the efficacy of tuberculin treatment for cases in this stage.

4. The longevity of cases treated by this tuberculin method is equally seen in cases untreated by tuberculin, and the mature age of many of the survivors is indicative of a chronic type of pulmonary tuberculosis which in ordinary circumstances, apart from any special form of treatment, usually allows survival in the individual for a considerable length of time.

5. Occasionally, there would seem to be individual cases of pulmonary tuberculosis which derive distinct benefit from tuberculin treatment. There is, however, always the risk that large doses of tuberculin may light up latent foci of tuberculous disease, and we deprecate the continued administration of tuberculin after the temperature reactions and constitutional disturbance have indicated renewed activity of the disease. In such cases there is undoubtedly risk that continuance of tuberculin administration may accelerate a fatal termination.

6. For the reasons given above, we are of opinion that the method of tuberculin administration advocated by the Tuberculin Dispensary League does not appear to have claims over other methods of treating tuberculosis, either with or without tuberculin, which would justify its general adoption.

(Signed) G. T. WESTERN.
L. S. T. BURRELL.
A. S. MACNALTY.

BRITISH MEDICAL ASSOCIATION:

THE COUNCIL DINNER.

THE second annual Council dinner of the British Medical Association was held at the Hotel Victoria, London, on Oct. 24th, Prof. R. A. Bolam, chairman of Council, presiding. The dinner was made the occasion for special congratulation to Sir Dawson Williams, the editor of the *British Medical Journal*, who has just completed 25 years in the editorial chair. Among the guests present were—

Sir William Joynson-Hicks, the Minister of Health; Lord Justice Atkin; Sir Humphry Rolleston, President of the Royal College of Physicians of London; Sir John Bland-Sutton, President of the Royal College of Surgeons of England; Sir Charters Symonds; Sir William Hale-White, President of the Royal Society of Medicine; Sir Dawson Williams; Lord Dawson; Sir John Collie, M.P.; Sir S. Squire Sprigge; Dr. T. Watts, M.P.; Dr. A. Bostock Hill, President, Association of County Medical Officers of Health; Major-General J. B. Smith, President, India Office Medical Board; Sir Henry Craik, M.P.; Surg. Rear Admiral J. Chambers, R.N., Director-General Royal Navy Medical Service; Sir Arthur Robinson, First Secretary, Ministry of Health; Lieut.-General Sir W. B. Leishman, Director-General, Army Medical Service; Sir George Newman, Chief Medical Officer, Ministry of Health; Air Commodore D. Munro, Director, R.A.F. Medical Service; Dr. T. W. Naylor Barlow, President, Society of Medical Officers of Health; Sir Sydney Russell-Wells, M.P.; Sir George Makins; Sir Jenner Verrall; Dr. Molloy, M.P.; Sir John Atkins; Sir James Dundas-Grant; Sir Edwin Lutyens, R.A.; Sir William Macpherson; Sir Alfred Rice-Oxley; and Sir Leonard Rogers.

The toast of "The Common Health" was proposed by Mr. C. P. Childe, the President of the Association, and was replied to by Sir W. Joynson-Hicks and Sir William Hale-White. Mr. Childe showed by the striking figures which he adduced how vast had been the improvements in common health during the last century, but he urged the medical profession to come more prominently into public life, and to secure better representation in Parliament and upon the boards of municipal and county authorities. The Minister of Health, in an eloquent reply, proved by a still more striking series of figures what a huge economic loss to the country was implied in time wasted through ill-health. But the State and the medical practitioner, he said, must coöperate against the fell diseases and foul conditions which still obtained, causing agony in the home. Sir William Hale-White, who also replied, pointed out that he was responding to a toast whose cordial acceptance would be unchallenged. Men differed on matters of creeds, political ideals, and national boundaries, but were unanimous in their desire for health.

The toast of the evening, "Our Editor," was proposed by Sir John Bland-Sutton, who sketched Sir Dawson Williams's career as pathologist and clinician and later as editor, being able to do so at each step on personal knowledge extending over 40 years. Sir Dawson Williams, who was received with acclamation, said that he seemed to have been enjoying the privilege of hearing his own obituary notice. He referred to Bland-Sutton as one of the founders of comparative pathology, who might have been pure man of science or physician but who elected for surgery. The distinction between medicine and surgery, said Sir Dawson Williams, had recently been defined for him by a lady in the following words: "The physican gives you something to take in, while the surgeon takes something out of you." Alluding to his earlier work at the *British Medical Journal*, he said that he was associated with Ernest Hart, "the quickest-witted man he ever knew," who had been trained under Thomas Wakley "who sowed wild oats with both hands" when starting THE LANCET, whose centenary they had just had the pleasure of celebrating. After a brief description of the development of the British Medical Association during his long connexion with it, Sir Dawson Williams concluded his speech by quoting the words used by Prof. Starling in the last Harveian oration, in which the belief was affirmed that the physician of to-day is seeing not a renaissance, but a new birth of man's power over his environment. In reference to the impending change of headquarters from the Strand to a beautiful building in Bloomsbury, the speaker said that in their new home they would be able to hold dinners and receive guests, and that plate would be necessary, towards which he begged to contribute a snuff-box.

The toast of "The Guests" was proposed from the chair and replied to by the Lord Justice Atkin and Sir Humphry Rolleston. Dr. Wallace Henry, giving the toast of the chairman, said that Prof. Bolam's work in bringing about a linkage between the Association and the Society of Medical Officers of Health, and in securing Sir Edwin Lutyens's beautiful building as their new headquarters had earned the gratitude of all.

LADIES' MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Denham Golf Club on Oct. 25th. The results of the various competitions were as follows: Scratch prize: Mrs. Granger Harrison, 89. Captain's prize for best net score in either division: Mrs. Jennings, 97 – 22 = 75. Second prize (juniors), Dr. Joan Ross, 101 – 21 = 80. First and second senior handicap prizes: Lady Goadby, 96 – 14 = 82; Mrs. Cavendish Fuller, 94 – 10 = 84 respectively. Prize for best 16 holes: Mrs. Nicholson, 68. Foursomes v. bogey: Miss Smyth and Lady Goadby, 1 down.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 3, 1923.

THE HEALTH OF THE SCHOOL CHILD.

SIR GEORGE NEWMAN'S report [1] on the school medical service for the past year is reassuring. While it deplores the fact that the need for financial restriction should have arrested certain developments almost at their birth, assurance is given that this is but a temporary phase and that the machinery so laboriously built up by local education authorities in previous years, though for the moment denied further expansion, has not been seriously damaged nor, taking the country as a whole, appreciably slowed down. "It remains intact," Sir G. NEWMAN writes, "and ready for increased output directly circumstances permit." The extraordinarily rapid growth of medical work among school-children, its detailed comprehensiveness, its ramifications which have now insinuated their way into every phase of educational life are a tribute to the persevering energy of the Board of Education and to the efficient administration of its medical service. Ten years ago the only statutory obligations on local education authorities in connexion with medical services were to provide medical inspection for children in elementary schools and to secure appropriate education for the blind and deaf; special provision for mental defectives, and medical treatment of the elementary school child were then entirely optional. It was in 1914 that the obligation was placed on authorities to provide for mentally defective children, and in 1918 this obligation was extended to physically defective children. Every authority is now obliged to make provision for medical treatment, and the school medical officer has found his way into secondary schools and other places of higher education. Out of an average of well over five million children attending elementary schools in England and Wales 46 per cent. were medically inspected during the school year; we are told that about 40 per cent. of the children were found suffering from a greater or less degree of physical defect, quite apart from disability due to infectious disease. About 2 per cent. of our elementary school population suffer from definite malnutrition, heart disease, anæmia, or deformities; in the country as a whole this means 100,000 victims of each of these four conditions. Among the infectious diseases prevalent during 1921 the highest mortality was attributable to diphtheria, whooping-cough, measles in descending order, while in the past year whooping-cough came first, measles second, and diphtheria third. Measles and scarlet fever, however, are still the greatest enemies of child life on account of their remote results.

Considerable progress has been achieved in dealing with cripple children. The science and art of orthopædics made great strides during the war. Crippling is obvious to the eye, and the growth of public interest in this type of defect has been stimulated energetically all over the country with the result that its treatment, thanks to the help of enthusiastic voluntary agencies, is going steadily ahead. Sir G. NEWMAN points out, however, that to deal satisfactorily with the problem of the cripple child early ascertainment of defect is essential. The incidence is largely prior to school life and occurs at any time up to 5 years from infantile paralysis, rickets, or non-pulmonary tuberculosis. He regards the physical condition of the pre-school child as still one of the most urgent problems of public hygiene, and devotes considerable space to the subject in the report. The first 12 or perhaps 18 months of the child's post-natal existence are passed under the watchful eye of the local health authority. The child attends the infant welfare centre periodically or is seen at home by the health visitor, but from this age until he enters school at 5 years, beyond a sporadic visit or two to the welfare centre, there is no further supervision of health. The age-period of 2 to 5 has been aptly described by one school medical officer as No-Man's Land. "The fact is," Sir G. NEWMAN writes, "that after the first year of life the young child has to bear a heavy burden of environmental neglect associated with bad housing, poverty, and absence of hygienic supervision. As a result the school medical service is faced with the hard issue that out of an infant population born healthy 35 to 40 per cent. of the children who are admitted to school at 5 years of age bear with them physical defects which could have been either prevented or cured . . . Here we have the most serious and wasteful defect in our national health service." This is surely a grave indictment of our present public health system and steps should be taken at once to remedy an acknowledged ill. Recent observations have shown that the earliest period of physical growth is the most important, for seeds of disease sown when resistance is slight may establish themselves beyond hope of removal. Over 12 years ago Dr. C. J. THOMAS, a medical officer to the L.C.C., demonstrated from carefully-sorted data that growth and capacity go hand in hand, and that the earlier the child contracts disease the greater the total effect produced. In this report we have the medical officer of the Board of Education emphasising the importance of these findings in a table comparing the heights and weights of London school-children in 1905 and 1923. It is found that the 8-year-old child in the selected area is three and three-quarters of a pound heavier and half an inch taller to-day than the child of the same age in the same area 15 years ago. Here is proof of the amazing cumulative effect of education and social effort.

Sir G. NEWMAN calls for more coördination between the medical officer of health and the school medical service. Here by joining hands a quite unnecessary gap may be bridged. The two to five-year-old period requires careful individual study; it cannot be tackled by the methods of the infant welfare centre. The child is now a separate entity from the mother; another baby has probably taken its place, and being less dependent it is left more to its own devices. It is going through a period when mental development is following closely in the wake of physical development; without the physical there can be little mental development, and physical arrest implies restricted mental growth. Here is a stage where doctors and educationists must work together, each pulling his own weight, the educationist directing the child's development by skilfully-planned coördination of muscular and mental activities, the doctor keeping a watchful eye on the child's general health and hygiene. The nursery school which has evolved out of the old-fashioned day nursery is the only place to-day where this work is being done in unison, and the number of nursery schools—24 for the whole of England and Wales, accommodating little over 1000 children altogether—is lamentably small. It is to be hoped that the Board will relax the financial stringency under which proposed schemes for dealing with this problem are languishing to-day. A scheme should be devised which, in Sir G. NEWMAN'S words, "shall be elastic enough to comprise all children of pre-school age in need of assistance." Another problem urgently awaiting administrative solution is that of the dull and backward child. All schemes to deal with established defects cost money; all are relatively expensive. To tackle the problem of the pre-school age is to diminish the number of cripples, and is sound financial policy. In 40 per cent. of the dull and backward children in the schools the unfortunate condition, according to the report, is accounted for by extraneous or non-mental factors, and it must be apparent that the earlier these conditions are investigated and courageously taken in hand the greater the saving in future expenditure. The report ends on an optimistic note. There is evidence throughout its pages of serious efforts being made to coördinate and consolidate social effort. It is the most constructive and encouraging document which has yet emerged from the medical department of the Board of Education.

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[1] The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1922. H.M. Stationery Office. Pp. 108. Price 1*s*. 6*d*.

THE NEXT STEP IN THE PANEL CRISIS.

THE situation in regard to the future of the insurance medical service has altered essentially during the past week as the result of correspondence between the Minister of Health and the Medical Secretary of the British Medical Association, set out on another page. The Minister has expressed his willingness to submit to the Cabinet a proposal to appoint a Royal Commission to consider the whole subject at an early date, and to remit to this Commission the question of remuneration. This offer will give the medical profession the desired opportunity of putting their views fully before the public in an orderly manner, while the Minister's willingness to accept such an inquiry indicates that the economic side of contract medical practice as at present administered is in need of full and intimate investigation. "I am not enamoured of the panel system," writes the present Minister, expressing a personal view other than that of some of his predecessors, who regarded this system as a basis on which an efficient medical service could be built up for the mass of the people. A new and specious point has been raised from the actuarial side, for the Minister contends that he cannot draw upon the reserves of insurance money, however great, because they have been built up by payments from the young and healthy people, who will claim the money in their later years when sickness is heavy. It needs the atmosphere of public comment, consequent on the findings of a Royal Commission, to deal with points like these freely.

The offer of a Royal Commission by the Minister does not immediately ease the present situation. As an impartial review of the methods and results of administering all the benefits provided by the Insurance Acts during 10 years' working it will certainly be welcomed by the doctors. Such a review could not fail to stimulate the Ministry to develop and complete the medical service in order to give to the community a real return for the money expended. The panel system at present, it must be admitted, is only half a service, and we are in sympathy with the remarks of the chairman of the Marylebone division, reported on p. 1004, in which he contends that the national health insurance must remain incomplete until the hospitals with their great resources form a part of it. It will be a great day for the hospitals, he says, when their special services are so required. This is also the view of the British Hospitals Association. Reference to a Royal Commission could hardly fail to result in the extension of the medical service in many directions in which it is now incomplete, and to which we have pointed so many times. Means of diagnosis, consultant and specialist services, practitioner clinics, are some of these needs yet unsupplied. But the settlement of the immediate difficulty of the position lies very largely in the hands of the Minister himself. An emphatic declaration from him to the effect that insurance funds as a whole are administered by the department, and that the sickness benefit fund controlled by approved societies is distinct from the medical benefit fund administered by insurance committees, would in itself go far to ease the situation. The Minister has been reported on one occasion as saying that there are only two ways of paying the doctors more than 8*s*. 6*d*.—either the money comes out of the taxpayers' pockets or out of that of the insured persons. "The doctors must remember that when I have made an agreement with them I have still to make an arrangement with the approved societies." And on another that the money belongs to the State, "and, as I am the representative of the State, it is my money." It all seems very disquieting, and the position is clearly a legacy of the arrangement made in 1922 when the Treasury grant was abolished and a portion of the present capitation fee taken out of surplus funds revealed by the first valuation of the societies.

The professional position in the dispute is quite clear. The doctors believe that the insurance fund is in a position to honour the claims made upon it, and that the medical benefit portion of that fund should be adjusted so as to provide the fee which after (not before) negotiation is considered adequate to ensure an efficient service. The position of the approved societies is equally clear. They declare that they have no further interest in the dispute if they can be assured that their sickness benefit funds are not to suffer as the result of any award to the doctors. The position of the Minister is not so clear. "Control" may be difficult to define, but the fear of control of their service by the approved societies has been sufficient to unite, not panel practitioners alone, but all sections of the medical profession, in a common act of refusal. We set out in another column the steps by which this insidious process may arise, a process which, like an early cancer, gave rise to little pain or discomfort in its initiatory stages, but which, if not dealt with, is likely in its course to sap the strength of the whole organism. It is easy to assert or contradict the presence of a malignant growth in the early stage. The mere hint of outside control has at any rate been sufficient to cause alarm among those who regard the doctor's responsibility to his patients and to the State as an asset of paramount importance. A pledge from the responsible Minister that this fear is ill-founded is the one thing needed. No one would wish to operate on a neoplasm whose existence had been categorically denied by a trusty and competent pathologist. We can only hope that, in the course of further negotiations, the position may be made so clear and certain that the profession will feel secure in rendering service to the Ministry and through the Ministry to the community at large. The result of the pourparlers now taking place will possibly be known to our readers before this reaches them.

THE EXPERT WITNESS.

In a popular statement of the degrees of untruthfulness the superlative is reserved for the expert witness. When scientific evidence adduced by plaintiff and defendant seems to be mutually contradictory, the layman is puzzled and grows sceptical of scientific values. Indeed, when in some big criminal trial the case for the Crown is supported by an overpowering weight of technical authority, he is inclined to assume that an equal volume of authority would be forthcoming for the defence if the defence were organised on the same scale and with the same resources. It might help to preserve the dignity of science amid the rough-and-tumble of the law-courts f a system of scientific referees were developed on the ines of the nautical assessors in Admiralty cases, as recently suggested by Mr. C. AINSWORTH MITCHELL n his interesting little book "The Expert Witness."[1] But already the County Court, the High Court, and the Court of Appeal possess wide general powers of summoning the aid of qualified assessors in all sorts of matters, apart from the special powers given by he Employers Liability Act and the Patents Act. Judges have shown less inclination to use these powers than might have been expected. It is perhaps natural that courts should be slow to delegate their udicial functions; often, too, the scientific issues in a case are but a part of what requires to be viewed as a whole.

Approaching from another side the task of saving scientific witnesses from undignified situations, the British Medical Association at its Portsmouth meeting last July passed a motion recommending hat medical men called as witnesses in legal cases especially under the Workmen's Compensation Act) hould consult with each other before the case is heard, so that they may, if possible, agree upon facts. The kind of incident which inspired this motion is llustrated by a street accident claim at Birmingham Assizes, where the plaintiff's medical witness deposed hat the photographs showed a fracture of the skull, whereas another witness, the radiographer, presently tated, on the contrary, that the lines relied upon in he photograph represented blood-vessels and not the ines of a fracture. Discrepancies of this nature, in o far as they can be foreseen before the trial actually begins, could presumably be cured by closer preiminary attention to points likely to be controversial nd by obtaining further photographic negatives to emove doubts or obscurities. Desirable as it may be n the abstract, we are not sanguine of the prospects f the procedure recommended. By all means let ll the cards be placed on the table. The public, however, and its legal advisers have yet to be educated p to perfect altruism in litigation; the parties to n action will, we fear, be suspicious of anything which can possibly be misconstrued as fraternising with the enemy in the trenches opposite. If a medical eport about a plaintiff's physical condition is to be ommon property, the doctor who has to set pen to aper may find himself exposed to all kinds of subtle ressure as to the limits of what he is going to say. One can even imagine the suggestion that the doctor's eport had better be settled in counsel's chambers. t is clearly desirable that the general value of rofessional testimony should not be impeached by ncidents which mislead laymen into the cynical iew that plaintiff and defendant can always find medical experts who will support their respective ases at all costs.

But even if all the material facts in a case can be agreed beforehand, there will still be discrepancies as to the opinions to be based upon those facts. When in a street accident case the full tale of the plaintiff's broken bones and bruises is told, we cannot expect the expert witnesses on both sides to agree upon the degree or duration of traumatic neurasthenia, except by some form of compromise which more properly belongs to the mental processes of a jury. The elimination of controversy between professional witnesses in such a case—whether attained by preliminary agreement or by the employment of scientific assessor or referee—would have obvious advantage. The value of the combination of legal and medical qualifications in the person constituting the judicial tribunal is often recognised when coroners are appointed. No doubt the doctrine of judicial ignorance prevents other judicial officers from acquiring for themselves and applying in the public interest a suitable measure of scientific knowledge. Perhaps a future generation will insist that, for the purposes of Workmen's Compensation, every county court judge should be a fully qualified medical practitioner, as well as, for the purposes of the Rent Restriction Acts, a fully qualified architect and surveyor. Some day we may even see an official medical representative appointed to the County Court Rules Committee. Meanwhile medical witnesses can play their own part in upholding the reputation of scientific evidence. They can give their evidence both in criminal and in civil cases with restraint and caution and with as much impartiality as the lawyers on both sides permit. The calm of the judge is a better model than the heat of the advocate.

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THE CENTENARY DINNER OF "THE LANCET."

A DINNER in celebration of the centenary of THE LANCET will be held in London on the evening of Thursday, Nov. 29th, at the Hotel Victoria, Northumberland-avenue, London, W.C., at 7.30 for 8 P.M. Sir Donald MacAlister, President of the General Medical Council, will take the chair, and will be supported by the Presidents of the Royal Society, the Royal Colleges of Physicians of London, Edinburgh, and Dublin, the Royal Colleges of Surgeons of England, Scotland, and in Ireland, the Chief Medical Officer of the Ministry of Health, the President of the British Medical Association, and the Presidents of the Royal Society of Medicine and of the Medical Society of London. The Minister of Health has signified his intention of being present, and it is hoped that a gathering representative of all the interests associated with the medical profession will meet on this occasion. Those who desire to be present should communicate before Nov. 15th with Mr. H. D. Gillies or Dr. J. H. W. Laing (hon. secs.) at 7, Portland-place, London, W. 1.

The charge for the dinner has been fixed at 15*s.*, exclusive of wines, and if notice be given in advance endeavour will be made to arrange that friends who so desire shall sit together.

ROYAL EAST SUSSEX HOSPITAL.—On Oct. 23rd Princess Alice opened the new building erected in Cambridge-road, Hastings, overlooking the sea. The institution at White Rock, founded some 83 years ago, had outgrown the demands made upon it, but when the new site was presented to the hospital by a committee in memory of King Edward VII. it was not expected that such a long interval would elapse before the new hospital was opened. The foundation-stone was laid on July 15th, 1914, but the war put a stop to the building operations. It was eventually decided to include the new hospital in the war memorial fund, and as a result the total cost of the new hospital for 105 beds—namely, £120,000—has been covered. The hospital is now to be known as the Royal East Sussex Hospital.

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[1] Cambridge: W. Heffer and Son. 1923. Pp. 188. 7*s.* 6*d.*

Annotations.

"Ne quid nimis."

THE DIRECTOR OF THE NEW SCHOOL OF HYGIENE.

The selection of Dr. Andrew Balfour for the post of first director of the School of Hygiene endowed by the Rockefeller Foundation will cause no surprise, since his unique qualifications for the post are sufficiently obvious. We expressed a belief last month when recording his resignation from the Wellcome Bureau of Scientific Research, which he has directed for ten years, that his period of unemployment would be short, and indeed it has proved so. Dr. Balfour has had a brilliant academic career at Edinburgh and Cambridge, where he was a prominent member and afterwards captain of the football team, He also gained his Scottish international colours. He served in the South African War as civil surgeon and was director of the Wellcome Tropical Research Laboratories in Khartoum from 1902–1913. During the Great War Dr. Balfour acted as sanitary adviser to Headquarters in Egypt, Salonika, Mesopotamia. India, and Africa. His reports on the health conditions of that period are of first-rate importance. In 1918 he undertook the investigation of the organisation of the public health services for the Egyptian Government and his report on the health problems of Mauritius followed on a visit to the island in 1921. At the Wellcome Bureau and elsewhere Dr. Balfour has himself undertaken much valuable research, notably on the spirochætosis of relapsing fever, blood conditions, and bacteriological problems connected with sanitation. He is joint editor of Lewis and Balfour's "Public Health and Preventive Medicine" and has published a number of monographs in connexion with sanitation in the tropics. The choice of a director of an institute established for teaching and research is analogous in some respects to that of a Prime Minister, for on the wisdom shown in this initial appointment depends the formation and later the cohesion of the team of associate workers. Honesty of purpose, skill in administration, knowledge of men—all these are indispensable in the head of a State or of a research intitute, but the latter must also possess considerable scientific standing if he is to attract fine colleagues. We congratulate the committee on having chosen a man under whose general direction distinguished specialists will be proud to work.

THE STRUCTURE OF THE THYROID GLAND.

The appearance of diagrammatic simplicity which ordinary sections of the thyroid present has encouraged a belief that its essential structure is obvious and well understood. In the current number of the *Journal of Pathology and Bacteriology* (vol. xxvi., p. 459), however, Dr. G. Scott Williamson and Dr. I. H. Pearse bring forward a novel interpretation of its morphology. The familiar vesicle lined with cubical or columnar epithelium and filled with colloid is not, according to these authors, the unit of structure, but a mobile and transitory phase of functional activity. The fundamental unit is a lymphatic space or sinusoid in which long convoluted columns of syncytial epithelium float, richly covered with a plexus of capillaries and not continuous with one another. In their resting stage these epithelial columns are familiar as the interalveolar masses of undifferentiated epithelium lying between the colloid-filled vesicles. Activity takes place along two distinct lines. In the first, droplets of colloid appear at various places in a column and increase in size until its continuity is broken up by a series of tense vesicles of varying sizes round which the epithelium is rearranged; this process of "vesiculation" gives rise to the conventional typical appearance of the thyroid, but, in the view of the authors, it does not represent the real secretory activity of the gland. This is exhibited in the second process described as "lacunation" in which the epithelium swells, becomes granular and vacuolated, and then partly dissolves, the resultant fluid mass accumulating in relatively lax irregular spaces in the centre of the epithelial columns. At the same time the lymphatic space becomes more or less distended with liquid, and lymphocytes appear in the intralobular lymph channels. This secretory activity is present in very small amount in the average normal thyroid. Judging from the authors' description and figures it is represented more largely in Graves's disease, and we shall await with interest the extension of these new ideas to the interpretation of pathological changes.

FIFTH CONGRESS OF THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

From Sept. 3rd to 8th the Fifth Congress of the Far Eastern Association of Tropical Medicine met at Singapore, under the presidency of the Hon. Dr. A. L. Hoops, principal civil medical officer of the Straits Settlements, and member of the Legislative Council. In his presidential address Dr. Hoops referred to the formless growth of cities, with the consequent overcrowding and dissemination of preventable diseases such as tuberculosis. Town planning, zoning, the building of houses, the provision of cheap transport, and of modern sanitary arrangements, must precede the destruction of insanitary tenements. Dr. Hoops continued:—

> Starvation is not common in the tropics. More malnutrition results from the use of improper food, and badly prepared food, than from lack of food. The three great deficiency diseases, beri-beri, scurvy, and rickets, are all preventable by proper diet, plus sunlight in the case of rickets. . . . The prevention of dental decay will avert the majority of digestive troubles to which flesh is heir. . . . In Malaya the rural population, amongst whom under-milled rice is the staple food, and breast feeding is almost universal, have good teeth. Amongst city dwellers, many of whom eat overmilled rice, or overmilled wheaten bread, and whose babies are often bottle fed, a sound head of teeth is the exception. Medical inspection of schools here during the past two years discloses that nearly two-thirds of school-children in Singapore city are suffering from serious dental decay, while the proportion in our rural schools in Province Wellesley is under 5 per cent Our large Eastern cities need pre-natal clinics, maternity hospitals, training centres for midwives, post-natal clinics child welfare activities—dispensaries and sanatoria for the tuberculous—venereal clinics, school and dental clinics But what will these avail, unless we remove the sources o evil—overcrowding and bad feeding? Good housing is a powerful agency in the suppression of that scourge of mankind—plague. In Assam the moving of inhabitants from infected houses to new quarters has greatly aided the diminution of kala-azar.

Dr. Hoops went on to deal specifically with malaria ankylostomiasis, beri-beri, and other diseases, all o which were the subjects of many papers and discussions during the Congress. Three hundred medical men representing 15 countries, were present, the Congress being the largest and most representative yet held A painful interest attached to the acceptance by the Association of the invitation to hold its sixth congress at the Tokio Imperial University, for many of the members of the strong Japanese delegation which delivered the invitation had left their families in Tokio and could hear no news of how they had fared during the earthquake. Among the social functions o the Congress was the laying of the foundation-stone o the Singapore Medical School, by Sir Laurence Guillemard, Governor of the Straits Settlements. A the final meeting of the Congress the following resolutions were adopted concerning uniform port quarantine procedure in the Far East:—

> 1. The regulations of the International Convention o Paris, 1912, are not suitable for the proper carrying out o quarantine measures in the Far East.
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> 2. The division so far proposed by l'Office International d'Hygiène and the Office of Hygiene of the League of Nations do not alter this unsuitability.
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> 3. That circumstances in the Far East demand a quit different quarantine procedure from that in Europe. It i

therefore desirable that a separate agreement should be drawn up to govern quarantine regulations in the Far East to allow of the necessary coöperation between the different Far Eastern countries. It is also agreed that a copy of this resolution be sent to all Governments of the Far East and the Office of the Health Committee of the League of Nations at Geneva, and l'Office Internationale d'Hygiène at Paris.

In regard to these proposals the Hon. Mr. E. A. Gilmore, head of the Health Service in the Philippines, had previously expressed the hope that the handling of the matter by the League of Nations Committee would not make it difficult for America to participate, and had suggested that a conference of the countries interested would be helpful. The Congress was felt to have been a great success, and the following week was spent by a number of the overseas members in touring the Federated Malay States and Penang.

PAINLESS MAXILLARY SINUSITIS SIMULATING PULMONARY TUBERCLE.

THE early diagnosis of pulmonary tuberculosis is of such fundamental importance that any febrile condition associated with cough and wasting must of necessity excite suspicion. It is a familiar fact to most physicians and laryngologists that pulmonary tuberculosis is often simulated both as to symptoms and physical signs by inflammatory conditions of the upper air passages, but it is open to question whether this fact is sufficiently generally recognised. An interesting paper by Dr. A. Lowndes Yates, which we publish in this issue of THE LANCET, should serve to draw attention to a special form of this problem—viz., maxillary sinusitis—especially in cases without empyema of the antrum and not associated with pain. Dr. Yates gives a brief résumé of the literature on the subject, and shows that since 1916 considerable attention has been paid to this question. He suggests that when the nasal protective mechanism fails and infective organisms reach the nose, in some patients the infection may stop short of producing empyema of the antrum and yet lead to reactive changes owing to the flow of pus into the pharynx and laryngopharynx. The delay in the removal of the infected mucus allows of toxic absorption, resulting in some cases in wasting and evening rise of temperature and night sweats. He describes in some detail the signs produced by such a condition. Apparently anterior rhinoscopy shows little or nothing, whereas posterior rhinoscopy may show very definite changes and more or less characteristic appearances may be seen in the pharynx and larynx. Dr. Yates finds that this condition may coexist with pulmonary tuberculosis, and in this combination the appearances are different. A point of interest and importance is that a patient with the painless form of maxillary sinusitis may be quite unaware of its existence, and may refer all his symptoms to his chest. Dr. Yates's observations would suggest that in any case in which cough exists with obscure signs in the chest, and in which repeated investigation of the sputum is negative, a careful examination of the nose and throat for maxillary sinusitis should be made. He gives such a clear description of the appearances found in this condition that his observations should be capable of easy confirmation or criticism. The subject is of special importance, as it may afford a means of excluding pulmonary tuberculosis without loss of time in some obscure cases, and lead to a more rapid restoration to health and comfort.

THE INCOME AND EXPENDITURE OF THE LONDON HOSPITALS.

THE annual statistical report for the year 1922 on the income and expenditure of 113 London hospitals, issued under the auspices of King Edward's Hospital Fund for London, has just been published.[1] The report is divided into five sections, each of which respectively gives in tabular form: (*a*) General particulars of the work done and the accommodation provided; an analysis of (*b*) the income, and (*c*) the expenditure; (*d*) the cost of working; and (*e*) group comparisons of the different hospitals. In this last section the hospitals are classified as (1) larger general hospitals, with and without medical schools; (2) smaller general hospitals; (3) consumption hospitals; (4) hospitals for women and children; (5) ophthalmic hospitals; (6) hospitals for epilepsy and paralysis; (7) cottage hospitals, and (8) lying-in hospitals. It is encouraging to note that in 1922 the total average number of available beds (12,421) in the 113 hospitals under review shows a net increase of 995 over the figures for 1913, although there has been a slight decrease since 1920. In-patients in 1922 numbered 162,149, a net increase of 17,511 over 1913. While the new out-patients in 1922 show a decrease of 48,000 as compared with 1913, the out-patient attendances have increased by 1,225,000. The average attendances of each out-patient were, in 1913, 3·5; in 1920, 4·3; in 1921, 4·2; and in 1922, 4·5. The income of these 113 hospitals (apart from special distributions) increased from £1,470,000 in 1913 to £2,401,000 in 1920 and £2,566,000 in 1921. In 1922 it decreased slightly to £2,398,000. It must be remembered, however, that the special distributions which are omitted from these figures included in 1922 £243,000 from voluntary sources—viz., from the first and second instalments of the proceeds of the combined appeal. It was part of the scheme of this appeal that for an agreed period the coöperating hospitals should suspend all independent appeals. It was anticipated therefore that, other things being equal, the income from voluntary sources would be below the normal if the proceeds of the combined appeal were excluded, and above the normal if they were included. The difficulties of the hospitals, as compared with conditions before the war, were produced by increase of expenditure and not by decrease of income. That expenditure now shows a substantial decrease: after having risen from £1,192,000 in 1913 to £2,784,000 in 1920, it fell to £2,776,000 in 1921 and to £2,572,000 in 1922. It is reassuring to observe that the greater part of this fall in expenditure since 1920 is not due to decrease in work but to reduction in cost. The report is a valuable document for all concerned in hospital management.

THE OTOLITH APPARATUS AND FŒTAL ORIENTATION.

As is well known, the internal ear is divisible into three parts, which subserve three separate and distinct functions: the cochlea serves for the perception of sound; the semicircular canals serve for the perception of movements of the head in space, or, more exactly, for the perception of acceleration of such movements; and the otolith apparatus for apprehension of the relative position of the head to the perpendicular, and also for the regulation of the muscle-tonus of the limbs, trunk, neck, and eyes. Our knowledge of the function of the otolith apparatus has recently been considerably advanced by the experiments of Magnus and de Kleijn, and it has been shown that, through reflex action from the otoliths, the various positions of the head in space influence the tonus of different groups of muscles of the trunk and limbs, and therefore the position of the body; the so-called "neck-reflexes," whereby alterations of position of the neck affect the tonus of the body-muscles, complicate these reactions, and it is probable that a whole series of similar reflexes exists which assist the animal in maintaining or in rapidly altering its posture. Dr. Ant. Precechtel, dozent in the Czechoslovak Aural Clinic of Prague, in a paper recently read before the Society of Czechoslovak Physicians, makes the suggestion, interesting alike to obstetricians and otologists, that these otolith reflexes play the principal part in regulating the position of the fœtus in utero, whereby some 97 per cent. of births occur as a head-first presentation. Dr. Precechtel argues that gravity will not explain this position, for the specific gravity of the fœtal head is found to be little if at all higher than that of the breech, while fœtuses experimentally floated in an artificial amniotic fluid were found to lower the pelvic pole. He criticises the so-called "accommodation" theories, by which the fœtus adapts itself to the shape of the uterus, or, by pressure of the active lower limbs against the unyielding pelvis, tends to turn the caudal pole upwards, and quotes the observation of Warnekros, who studied by skiagraphy the position of twins in a case of hydramnios and found that they kept a head-downward position in all postures of the mother. He supports his thesis by the observation that the otolith reflexes were obtainable in a large proportion of new-born infants, and by the significant fact that the vestibular branch of the eighth nerve myelinizes at the end of the fourth month, and considerably earlier than the cochlear branch or than the other sensory nerves. He has tried in vain to find corroboration by questioning the parents of congenital deaf-mutes as to abnormal presentations, but explains the lack of such abnormality by the fact that congenital defects of the vestibule are far rarer than those of the cochlea. It is an interesting speculation, but one very difficult of complete proof.

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[1] Spottiswoode, Ballantyne and Co., Ltd., 1, New-street Square, London, E.C. 4. Price 2*s*. 6*d*., post free, 2*s*. 9*d*.

SYMBIOSIS AMONG ORCHIDS.

A remarkable instance of symbiosis between flowering plants and fungi is afforded by the association between orchids and their micorrhizal fungus, and was dealt with by Mr. Somerville Hastings in his inaugural address at the recent sessional opening of the Middlesex Hospital. This important work, necessarily abridged in our own columns,[1] may now be read at length in the current issue of the *Middlesex Hospital Journal.* With one doubtful exception every orchid so far examined is known to be infested with at least one fungus. The importance of the fungus to the host plant is shown by the fact that orchid seeds removed from the pod under aseptic conditions and sown on sterilised soil are unable to germinate, and, at most, swell up and turn green and then die. If, however, the seed is planted upon soil in which the parent plant was growing, and which consequently contains the fungus, germination results and a normal seedling is produced. With the entry of a single filament of the fungus into an orchid seed rapid cell divison ensues, and the filament gradually advances into the seed passing from cell to cell; it is, however, not permitted to penetrate too far, the seedling being apparently able to exclude its entry into the stem and root. The young root thus enters the soil free from fungus, and only becomes infected subsequently by the penetration into it from the soil of a new filament. Throughout the life of the orchid the fungus is restricted to the region of the root, only one case being known, that of the Bird's Nest Orchid (*Neottia*), in which the fungal hyphæ are allowed to penetrate all through the plant. The orchids thus infested with micorrhiza derive nourishment therefrom, being able to digest the coils of fungus within their cells. The fungus was first isolated and cultivated outside the plant by Noel Bernard in France, and named by him *Rhizoctonia* from its close resemblance to *Rhizoctonia violacea*, which produces a form of potato disease. The Japanese orchid (*Gastrodia*) produces tubers buried under ground and resembling those of the potato; every year the tubers give off offsets, just as a potato does, without, however, producing leaves or flowers; in succeeding years these offsets become progressively smaller until finally they become incapable of further growth. If, however, the tubers come in contact with fungus threads of the well-known "stump tuft" toad-stool (*Armellaria mellea*) full grown offsets are produced, which next year develop flowers and presumably seeds. The beneficial effect of the infection of this orchid by the stump tuft fungus is the more remarkable since this fungus is known all the world over as a destructive parasite which often settles in large masses upon tree stumps; it would appear that in attacking the thickened underground root of this orchid it becomes worsted in the struggle, and is made to yield to the orchid some of the food stolen from the neighbouring trees. These observations appear to give the clue to the origin of micorrhiza, since it is suggested that the higher plants may have developed an immunity against fungi originally parasitic upon their roots, and that they have obtained control over them and actually derive benefit from them. According to Bernard the entry of a single filament into an orchid seed excludes all others, even though it be an attenuated form incapable of effecting germination; for this reason he concluded that the first infection immunises the seed and prevents further infection, a process which he compared with vaccination. The significance of these discoveries with regard to orchid micorrhiza have been fully appreciated by commercial orchid growers, and in this country more particularly the growing of orchid seedlings under aseptic conditions has been brought to a high state of perfection by Ramsbottom and Charlesworth.

INTRAPERITONEAL INJECTION OF ANTITOXIN IN DIPHTHERIA.

We recently drew attention to a method of administration of antitoxin in diphtheria recommended by MM. Benhamou, Camatte, and Flogny,[1] of Algiers, which consisted in its injection by the intraspinal route. Dr. E. S. Platou,[2] of the Willard Parker Hospital and Research Laboratory, New York City Department of Health, now advocates the intraperitoneal route which is commonly employed for the injection of saline solution in infants. The new method was chosen owing to the absorptive power of the peritoneum which had been demonstrated by many observers. The technique employed was as follows: The patient was placed in the recumbent position with the arms and legs confined by a restraining jacket. The most suitable site is the linea alba just below the umbilicus. The skin is prepared with iodine and alcohol, and the area may be rendered anæsthetic by ethyl chloride. The antitoxin in doses of 10–14,000 units, with 8–10 c.cm. of saline, is introduced by gravity from an infusion bottle. The skin and subcutaneous tissues are picked up between the thumb and index finger and the needle is inserted obliquely, pointing upwards. After the antitoxin has penetrated the peritoneum it is allowed to flow into the peritoneal cavity. Dr. Platou has used the intraperitoneal method in a group of 12 severe cases, aged from 5 months to 14 years, in whom it was impossible to administer antitoxin intravenously. Ten recovered without complications, and two who were almost moribund on admission died, death being due in one case to laryngeal diphtheria and extensive broncho-pneumonia, and in the other to septic diphtheria and hæmorrhagic myocarditis. In both the peritoneum was free from any pathological condition. In none of the 12 cases was there any evidence of local discomfort from the injection. One patient presented slight urticaria on the seventh day, but none had any constitutional symptoms. Estimation of the comparative absorption of antitoxin by the intramuscular and intraperitoneal methods showed that within an hour of intraperitoneal injection the blood was appreciably antitoxic, and up to seven hours the absorption was about five times that found after intramuscular injection. The peak of absorption for the intraperitoneal method was about 36 hours, whereas for the intramuscular method it was somewhere between 48 and 72 hours. Dr. Platou regards the method as particularly applicable in advanced cases where suitable veins are lacking for intravenous administration, and in moderately advanced cases in which intravenous injection is not considered necessary or advisable, but where more rapid absorption is desired than can be obtained by the intramuscular method. Further observations are required to confirm the value of the intraperitoneal method, but in the meantime it is obviously desirable in view of the possibility of infection of the peritoneum that the method should not be employed as a routine in all cases of diphtheria, but should be reserved for the worst cases, especially those in which the intravenous route cannot be employed.

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[1] The Lancet, Oct. 6th, p. 775.

[1] The Lancet, June 16th, 1923, p. 1224.

[2] Archives of Pediatrics, September, 1923.

THE PERIODICAL EXAMINATION OF LIFE POLICY-HOLDERS.

AT a largely attended conference convened by the Federation of Medical and Allied Services at 12, Stratford-place, Oxford-street, London, W., on Oct. 24th, an interesting discussion took place on the value of the periodical medical examination of the apparently healthy as a factor in preventive medicine. Sir Malcolm Morris presided, and representatives, both lay and medical, of the following societies were present, together with prominent members of the organisation of the Federation :—

Eagle Star and British Dominions Insurance Company, Standard Life Assurance Company, Prudential Assurance Company, Legal and General Assurance Society, Wesleyan and General Assurance Society, Australian Mutual Provident Society, National Provident Institution, Royal Exchange Assurance, Refuge Assurance Company, Atlas Assurance Company, London and Manchester Assurance Company, Sun Life Assurance Company of Canada, Royal London, Mutual Insurance Society, Royal Liver Friendly Society, Commercial Union Assurance Company, Medical Sickness Annuity and Life Assurance Society, Coöperative Insurance Society, Hearts of Oak Assurance Company, Assurance Medical Society, Guardian Assurance Company, Public Health Advisory Committee, Clinical Research Association, Medical Sickness Annuity and Life Assurance Society, and the Sydenham District Medical Society.

In opening the conference the chairman pointed out that the Federation was a union of the various social activities concerned with health, and that it exists to promote the interests of the community as distinct from the interests of any professional section. The object of the conference was to serve the interests of the individual citizen—the policy-holder—while extending among the people the wise practice of seeking periodical examination or overhaul, in order that the early signs of departure from the standard of normal health might be detected. Already, he said, most sensible people visit their dentists regularly for examination of the teeth ; why not of other bodily systems ? Major L. G. S. Molloy, M.P., submitted a resolution stating : "That this conference approves the principle of periodical medical examination of life assurance policy-holders," remarking that such a principle, if carried out, would tend to the prevention of disease and would be a great advantage to the policy-holder if he did not have to pay for the examination. The medical profession would also benefit, but he feared that the insurance companies would be involved in expenses which they would not consider advantageous to themselves. Dr. Neville Spriggs, who seconded, was of opinion that periodical medical examinations would be for the benefit of all concerned. A long discussion followed as to the advantages or disadvantages to the public generally, and to the insurance companies, of such a principle as that advocated in the resolution, and a letter was read by Mr. N. Howard Mummery, Medical Director of the Federation, from Sir William Schooling, suggesting that the most beneficial and economical arrangement for both the original examinations for life assurance and for periodical re-examinations, would be the establishment of insurance medical institutes in the principal towns throughout the country. Finally, on the motion of Dr. Charles Buttar, seconded by Mr. Eric B. Nathan, the following resolution was unanimously carried : "That this conference approves the principle of voluntary periodical medical examination of citizens, and presses upon life assurance offices the desirability of the adoption of this course with the policy-holders."

THE CAMBRIDGESHIRE TUBERCULOSIS COLONY.

THE report on the Papworth Colony for 1922 is a beautifully illustrated work, printed by the members of this community. The outstanding event of 1922 was the formal opening of 31 new cottages, two hostels, and a nurses' home by Sir Alfred Mond who, in his address, referred to Papworth as the most wonderful institution of its kind in the world. He hoped that Papworth would be a model which would be copied in other parts of the country. Every page of this report is full of the author's vigorous optimism, and it is certainly to be hoped that the maker of Papworth, if not Papworth itself, will be used as a model and pattern by many imitators. Dr. P. C. Varrier-Jones, who further elaborated his ideas on village settlements on p. 912 of our issue of Oct. 20th, believes that all the progress made during 1922 has pointed to the soundness of the settlement idea. Of its success, if we are to judge by this report, there can be no doubt. It is more difficult to form a correct opinion of the reasons for this success. Dr. Varrier-Jones would have us believe that the principles on which he has worked are in themselves sound enough to warrant success. If this is so, and the problems of the Tuberculosis Settlement have been long enough studied for a mass production of Papworths to be attempted, such a procedure might be considered justifiable, provided adequate means are available. But if, as some suspect, the success of the first Papworth depends largely, and even mainly, on the personality of its founder, we should do well to delay creating replicas of Papworth till we can be assured of an adequate supply of replicas of its founder. To return to the first Papworth, it is worth noting that it is no longer in its infancy ; 1922 was the seventh year of its existence and the fifth since the transfer to Papworth Hall. Cases of surgical as well as pulmonary tuberculosis are admitted, and no patient is refused admission, however advanced the disease, if accommodation allows. The account given of the various industries shows that the presiding genius of Papworth is blessed with a business instinct. He has come to the conclusion that chicken farming is an occupation suitable only for those with marked resistance to the disease. The notion that poultry farming consists of dispensing grains of corn at odd hours to hens pouring out a steady stream of eggs is not quite correct. Boot-making and repairing is a trade the profits of which are mulcted by the heavy charge of employing a canvasser for the collection and distribution of repairs. But portmanteau and other leather work has yielded an annual turnover of nearly £4000 at Papworth, and this industry seems to be established on a firm basis. The total number of inhabitants in the village is now 152.

PREGNANCY COMPLICATED BY HEART DISEASE.

Prof. W. Frey, of Kiel, has published in *Zentralblatt für Gynäkologie* for Oct. 6th a paper on the prognosis of heart disease complicated by pregnancy. His review of the literature of this subject shows only too plainly that though it has been discussed for many generations, anything but unanimity has been reached. He suggests that the observations of various authorities are contradictory, partly because the material on which their observations were based was not similar, and therefore not comparable. He also suggests that the material available in an out-patient department is more suitable for an investigation of this problem than the inmates of a hospital, and he has, accordingly, conducted examinations of the cardio-vascular system of 1000 consecutive cases coming to his gynæcological out-patient department in 1917–18. In 49 cases definite valvular disease was found, but only one of these 49 women died during pregnancy as the result of heart disease. Only 32 of these women were traced two or four years later, when it was found that five had died. But it was very doubtful if any of these deaths were due to pregnancy. Prof. Frey has found that the expectation of life for men and women suffering from heart disease is practically the same. For women the average duration of compensation was 12 years, and for men it was 13. Necropsies told the same tale. There were very few cases in which the cause of the death of patients suffering from heart disease could be traced to pregnancy. Prof. Frey does not subscribe to the opinion that aortic disease is more serious than mitral disease in pregnant women. The prognosis depends, in his opinion, mainly on the vitality of the muscles of the ventricles. It does not so much matter whether the mitral or the aortic valve is involved as whether the disease is severe and acute or not. Among 29 cases of valvular disease examined post mortem there were as many as 24 in which signs of acute disease were found. This observation suggests that death from valvular disease of the heart is usually due to an acute exacerbation of the infectious process rather than to the purely mechanical factors associated with endocarditis. With regard to treatment, Prof. Frey classifies his cases according as pregnancy is associated with (1) recent inflammatory disease of the heart; (2) heart disease inadequately compensated, but not showing signs of active inflammation; and (3) compensation of the heart disease. The correct procedure in the third class is obvious; pregnancy need not be interrupted. But in the first class Prof. Frey advocates interrupting pregnancy whatever stage it has reached, whether the patient be a primipara or multipara, and even when there is satisfactory compensation. As a guide to the detection of active endocarditis he recommends taking the temperature in the rectum, and noting whether or not the patient is subject to tachycardia even at rest. The choice of procedure to be adopted in his second class of case is a difficult matter, but he is in favour of pursuing a conservative course as long as possible, in the hope that rest of body and mind and the administration of such drugs as digitalis may restore compensation and enable the patient to go to term.

THE MORISON LECTURES.

To a Scottish doctor must the credit be given of first instituting in this country special lectures on the diseases of the mind, and that at an early date when the conception of mental disease had barely advanced from the definition: "true madness, what is't, but to be nothing else but mad?" In 1823 Dr. (later Sir) Alexander Morison gave the first lecture on mental disease in Edinburgh. Five years previously he had studied under Esquirol in Paris, together with two or three eminent compatriots, for owing to the "auld alliance" Scotsmen even at that time were regarded in France with a certain friendliness. So impressed was Morison with Esquirol's teaching that on his return he made a strong endeavour to have a lectureship or professorship on this subject instituted in Edinburgh. One of his proposals was that the visiting physicians at Morningside Asylum—which had recently been built to supersede the barbarous city Bedlam—should deliver the lectures. This proposal was not adopted, but so keenly did he realise the importance of his subject that by a grant of private property to the Royal College of Physicians of Edinburgh he founded a lectureship in perpetuity, and for the next 30 years he or his son lectured annually. This year the centennial course of the Morison lectures was delivered in the Royal College of Physicians of Edinburgh on Oct. 15th, 16th, and 17th by Dr. Alexander Blackhall-Morison, his grandson. The subject of the course was, fittingly, a review of the progress of neurology, psychology, and psychiatry during the century since the foundation of the lectureship. In sketching the progress of neurology, Dr. Blackhall-Morison made a preliminary reference to the previous work of Whytt on reflex actions, to Haller's on organic action, and to the influence of Bichat as an interpretive anatomist, followed by the epoch-making experiments of Charles Bell and Magendie on the differing functions of the nerve-roots. The work of John Abercrombie, philosophical and medical, was referred to, and Gaskell's morphological investigations were especially dwelt upon. He then outlined the rise and progress of embryology, and the work of von Baer, Kölliker, His, Balfour and others was referred to. The results of the experimental work of Flourens, Marshall Hall, the Webers, Claude Bernard, Brown-Sequard, Schiff, and Ludwig were given, and the localisation of cerebral function by Fritsch, Hitzig, and Ferrier discussed, together with the clinical anticipation of such by Hughlings Jackson. The clinical discoveries of Todd, Duchenne, Charcot, Romberg and others of the German school were assessed, and the lecture closed with a consideration of the modern neural surgery of such pioneers as Horsley, Macewen, and Cushing. The second lecture dealt with psychology as a biology, and the growth of mental philosophy in the Scottish school was sketched. Dr. Blackhall-Morison considered the work done on mental faculties by Gall, Combe, and other phrenologists in the localisation of mental faculties, described the localisation of the special senses, and discussed the origin of language. Mind, he contended, was a living organism not a neural habit, and the importance of the persistence of the ego in general, and of the human ego in particular, was dwelt upon. The claims of the new psychology were examined and the place of judicious psycho-analysis in practice indicated. In the third lecture, the history of psychiatry from the end of the eighteenth century was outlined and the work of Haslam, Pinel, and Esquirol especially mentioned. In dealing with the ætiology of mental disorder, the lecturer estimated the influence of bacteriology and endocrinology, and special reference was made to the work of Mott.

The supreme importance of the care of the mind is becoming widely recognised among physicians, and the importance of early and adequate treatment of mental disorder is at last receiving some measure of consideration. In this connexion a paper by Dr. J. C. Porter Phillips[1] on the early treatment of mental disorder deserves attention. Asylum reform is going hand in hand with advancing knowledge, and special lectures on mental disease now form part of the curriculum in every medical school.

Sir Humphry Davy Rolleston has been appointed Physician-in-Ordinary to the King in the room of Sir James Reid, deceased, and Dr. Edward Farquhar Buzzard has been appointed Physician Extraordinary to His Majesty.

THE Nobel prize for medicine for 1922 has been divided between Prof. Archibald V. Hill, University College, London, and Dr. Otto Meyerhof, professor of physiology at Kiel University. Prof. Hill has, since 1910, been engaged on research on the formation of lactic acid in muscle during exercise, and in particular, its removal on recovery from fatigue, a continuation of the work done by Sir Walter Fletcher and Prof. F. G. Hopkins in 1908. As a mathematician and a physicist, Prof. Hill introduced into his investigations a totally different physical technique to that employed hitherto. Prof. Meyerhof, a close personal friend of his co-medallist, has pursued a similar course of research. The prize for 1923 has been divided between Prof. J. J. R. Macleod, F.R.S., and Dr. F. G. Banting for their work on insulin.

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[1] THE LANCET, Oct. 20th, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLIII.—TREATMENT OF BLEPHARITIS AND STYES.

Blepharitis, by which is understood a chronic marginal inflammation of the eyelid, includes several diverse conditions which, although similar in cardinal signs (redness and thickening of the lid margins) and symptoms (burning and itching of the lids, sensitiveness of the eyes to light, heat, and dust), differ in their ætiology, pathology, clinical cause, and prognosis. Certain rules applicable in the treatment of blepharitis in general can, however, be formulated. It is important to remember that obstinate cases of chronic blepharitis are often associated with errors of refraction, especially hypermetropia and astigmatism. This is probably because congestion of the lid margins and a consequent lowered resistance to infection result from constant straining of the eyes. These errors must be corrected, great care being taken to include especially small astigmatic errors. Glasses worn constantly not only eliminate strain, but protect the eyes from irritating influences, which may cause or at least aggravate the disease. Ill-health, insufficient nourishment, unhygienic conditions, and neglect of personal cleanliness often constitute important factors in keeping up a chronic blepharitis; obstinate cases are common in hospital clinics, and comparatively rare among private patients. The occurrence of obstinate blepharitis as the result of a distant focal infection has been reported. Blepharitis accompanied by lesions of a similar nature affecting the eyebrows, face, and scalp must be regarded from a dermatological standpoint, the lid condition being part of the general skin affection.

Inflammation of the lid margins necessarily involves the marginal part, at least, of the conjunctival sac, and is thus invariably accompanied by a conjunctivitis. But in many cases a conjunctivitis is the direct cause of the blepharitis, an eczematous condition of the skin being induced by constant lacrymation and discharge of muco-pus. This is especially common in cases of chronic eczematous or phlyctenular conjunctivitis in children, or in catarrhal conjunctivitis caused by the Morax-Axenfeld diplobacillus. Treatment must here be directed towards removal of the conjunctival disease and of conditions likely to cause it—e.g., stenosis of the lacrymal passages, eversion of the punctum, &c.

Massage of the lid margins is often a useful adjunct to treatment, especially in chronic cases, ensuring the emptying of the infected secretions of the follicles and glands. It is carried out by means of a round-ended glass rod, which is gently rubbed along the inner conjunctival surface of the edge of the lid, support being given to the latter by the thumb, held against the outer skin surface. This is apt to be a painful proceeding, and must be done with gentleness.

A *bacteriological examination* of secretions from the eyelids and conjunctiva by direct film and culture, affords valuable information in many cases. For example, presence of the Morax-Axenfeld diplobacillus indicates the use of zinc solution or ointment.

The *onset* of blepharitis usually occurs in childhood, when early and persistent treatment is of the highest importance. In untreated cases the lid margins may become permanently altered, owing to destruction of some or all of the eyelashes and the formation of scar-tissue, making a complete cure impossible. Eyelashes which escape destruction may become stunted and distorted and rub against the cornea, causing intense pain and photophobia, and giving rise to ulceration of the cornea and interference with vision. The lid margins may become thickened and rounded and ectropion may result.

Differential diagnosis from uncomplicated conjunctivitis in cases with dried crusts or scales in the neighbourhood of the eyelashes is made after removal of the crusts, the lid margins being normal in the last-named condition and always red, often thickened and sometimes ulcerated, in the presence of blepharitis.

Local Treatment of the Lid Margins.

In general the essential measures are: (1) A careful cleansing with a detergent solution to remove all secretion and crusts, with removal of loose lashes, followed by (2) the application of antiseptic ointments with gentle friction. Sod. bicarb. in warm 3 per cent. solution is the most generally serviceable cleansing solution. It has little or no germicidal power, but is non-irritating and softens the hard crusts of dried secretion. Ointments should be used twice daily; in the morning the greater part is wiped off again, but overnight a thick layer should remain on the lid margin. Antiseptic ointments are useful, both because of their antiseptic properties and of the protection afforded to the inflamed part by the greasy excipient. It is useless to apply ointment until all crusts have been removed. Antiseptics with highly irritating properties must never be prescribed, as they tend merely to aggravate the trouble instead of effecting a cure. Yellow oxide of mercury, so widely used in ointment form, is a striking and common example of this mistake; owing to its irritating action it often fails to effect a cure. Ammoniated mercury (1 per cent. in vaseline) is preferable and is one of the most generally useful drugs.

(3) Silver salts in solution are of sovereign use, especially in ulcerative blepharitis. Silver nitrate, in 1 per cent. to 2 per cent. solution, or some of the proteid compounds of silver (e.g., protargol 10 per cent., argyrol 20 per cent.) may be employed. Most forms of the disease are extremely obstinate, and the length of time during which treatment must be continued, as well as the chances of a permanent cure, are usually inversely proportional to the duration of the disease. In the treatment of milder cases vaccines are rarely used, but are undoubtedly beneficial in certain obstinate cases, especially those of staphylococcal origin. In my experience those cases which benefit by this treatment require its continuation. Directly the injections are discontinued the lid inflammation exacerbates only to improve under a fresh course of injections.

Common Clinical Varieties.

The common clinical varieties of blepharitis, in all of which correction of refractive errors is a necessary preliminary to any form of treatment, are:—

(1) *Simple chronic hyperæmia* of the lid margins without appreciable thickening, usually affecting both eyes and associated with sensitiveness of the eyes to dust, glare, tobacco-smoke, and strain. Treatment: Appropriate glasses must be prescribed, slightly tinted if necessary.

(2) *Squamous blepharitis* usually affects both eyes. The lid margins are hyperæmic, and slightly but evenly thickened, and the skin surrounding the eyelashes is covered with fine whitish scales consisting of dried sebaceous secretion. There is no ulceration. The condition is a seborrhœic one, and is often extremely resistant to treatment. Treatment: Careful removal of the scales and loose lashes, twice daily, with sod. bicarb. solution. Massage of the eyelids, with expression of the contents of the meibomian glands, and subsequent application of an ointment. In the diplobacillary cases the following is most effective: Ichthyol ammoniate, 0·2 part; zinc oxide, 5 parts; vaseline, 15 parts; and the conjunctival sac should be irrigated with a solution of zinc sulphate (½ to 1 per cent.). For the staphylococcal cases ammoniated mercury ointment is the most useful; other ointments (e.g., salicylic acid, 1 per cent.; resorcin, 1 per cent.; ichthyol, 1 per cent., and simple boric ointment) may be tried. Squamous blepharitis does not give rise to deformity of the lid margin.

(3) *Ulcerative blepharitis* may affect one or both eyes. The lid margin is red and unevenly thickened. Hard crusts of dried secretion surmount the lumpy

thickenings and cling tenaciously to the eyelashes; on their removal ulcerated surfaces, which bleed readily, are exposed, and small abscesses may also be present; usually *Staphylococcus aureus* may be found. This, the severest form of blepharitis, is most common in children, and is a frequent sequela of measles. If allowed to persist, destruction and scar formation result. Treatment consists of thorough removal of all crusts twice daily with sod. bicarb. solution, and of loose eyelashes with epilation forceps; application of 2 per cent. silver nitrate solution once a day to the ulcerated surfaces with a cotton-wool wrapped probe, or in less severe cases repeated friction of the edges of the lids with a camel's-hair brush dipped in 10 per cent. protargol solution; subsequent application, twice a day, of ammoniated mercury ointment. Attention must be paid to the general health.

(4) *Eczematous blepharitis*, in conjunction with and secondary to a conjunctivitis. The skin of the lid margins is reddened and excoriated. Treatment: In addition to that appropriate to the conjunctival condition, the edges of the lids should be kept greased with ointment as a protection against conjunctival discharges. Boric ointment, ammoniated mercury, or ichthyol and zinc in the diplobacillary cases, may be used.

(5) In a true *sycosis* of the eyelashes the lid margins are swollen, and show numerous small abscesses in the hair follicles, an eyelash appearing in the centre of each point of pus. The eyebrows are usually affected as well. This condition is very intractable, and must be treated by daily epilation of the lashes, evacuation of the abscesses, and the application of mercury or other ointments.

Styes.

Styes are of two kinds, external (the common variety) and internal. The former is an acute pyogenic infection of an eyelash and its sebaceous glands, the latter a similar infection of a meibomian gland. Both kinds are accompanied by œdema, often intense, of the eyelids. The external stye, which appears as a painful swelling on the anterior border of the lid, may sometimes be aborted by extraction of the eyelash and application of a pointed match dipped in pure carbolic, followed by frequent bathing with very hot boric lotion. This is best done with a sponge stick made by tying a piece of lint round the handle of a wooden spoon. "Blind" styes should be treated in this way. If the stye points it should be opened under local anæsthesia, produced by subcutaneous injection of novocaine solution round the base of (not into) the swollen area and fomentations applied. Recurring styes often disappear when errors of refraction are corrected. Sometimes they indicate lowered resistance to staphylococcal infection, when vaccine treatment may prove beneficial. The lids should be cleansed nightly for several weeks with sod. bicarb. solution, followed by application of ammoniated mercury ointment, in order to check the formation of fresh styes.

Internal styes are comparatively rare—they point on the conjunctival surface, and must be opened there, and fomentations and hot bathings applied. Occasionally the acute stage passes off without discharge of pus, a chronic meibomian cyst resulting, which can be got rid of in the usual way by incision from the conjunctival surface, and scraping with a sharp spoon.

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Recent articles in this series are:—

XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham. XXXIX. Flat-foot, by Mr. Blundell Bankart. XL. Medical Treatment of Early or Suspected Duodenal Ulcer, by Dr. J. A. Ryle. XLI. Retention of Urine, by Mr. J. Swift Joly. XLII. Treatment of the Neurotic, by Dr. Kinnier Wilson.

Special Articles.

POINTS FOR CONSIDERATION IN MOTOR-CAR SELECTION.

(BY OUR MEDICAL MOTORING CORRESPONDENT.)

AT the International Motor Exhibition now being held (Nov. 2nd to 10th) by the Society of Motor Manufacturers and Traders at Olympia, Kensington, some 522 stands have been allocated to exhibitors and about 140 makes of cars are on view. The would-be purchaser will have plenty from which to choose. To extract the grain from the chaff will be the difficulty.

As user of cars for professional purposes the medical man's chief concern is reliability combined with simplicity. Most of us do not buy cars to replace them 12 months hence. We usually purchase "for keeps" and do not propose considering a new car for anyway three or four years. Thus the car's family history becomes a deciding factor. Some of the latest manufacturers may not weather what, with the present severe competition, may prove a stormy season. This may mean difficulty in procuring replacements if the makers are not in existence next year. Thus the advantage in selecting old-established firms. Another guiding point is the second-hand value of the car in view; a high second-hand value is a good test of a car's quality.

The coach-work is, of course, a matter for individual choice. For protection from wet and cold and quick conversion into an open car, the all-weather body will appeal to many. Instead of glass windows the type with curtains fitted to and opening with the doors, as originally brought out by the Standard Motor Company, is now justly popular and can be supplied with most cars.

The Engine and Transmission Design.

The important point is the engine and transmission design. What constructional factors should influence selection? For the larger cars four cylinders are almost universal and are certainly desirable; more is a luxury. For the doctor's purpose 12 h.p. is ample, even in hilly districts. It has, too, the advantage of economy in tyres and a moderate tax. The question of the type of engine valve is debatable. The overhead, operated by push rods and rockers, or an overhead cam-shaft has many advocates. It is rather more complicated and means more trouble when dismantling for decarbonisation is needed. With correct feeders the occasional needed adjustment is simple enough, yet many owner-drivers ignore this need and suffer accordingly. Side-by-side valves are easier to get at and have the advantage of simplicity. They probably do not conduce to as much power in a high-speed engine. Their retention in such excellent cars as the Fiat and Unic is an argument in their favour. The taxi-driver usually knows what he talks about. Like ourselves, he is out for simplicity and reliability. He says he gets it on the side-by-side valved Unics and Fiats.

Personally, I do not mind giving my mount a little attention, perhaps that accounts for my partiality for the overhead kind. With a good maker whatever form is fitted as standard can, I think, be accepted with confidence. With modern practice, the old axiom, "For each throw a crankshaft bearing" is obsolete. With three bearings as now designed, whip does not occur. Even two bearings on small 4-cylinder engines are found to be quite satisfactory. Connecting rods are now often lined with anti-friction metal direct. Many engines run for 40,000 miles before the big ends need attention; when they do, then the advantage of removable lined brass or gun-metal bearings is discovered. Their absence means more trouble and expense. The lighter high-speed small engines usually develop a knock under considerably less than the distance just mentioned, so anyway for these the brass-lined bearings are preferable. War aeroplane experience introduced the aluminium alloy pistons. They lighten the reciprocating parts and thus ensure smooth running. Use on car engines has certainly proved the value of this innovation. On the larger engines the provision of four piston rings is an advantage. It means better compression, and what is as important, less passage of oil into the combustion chamber. If much gets into that compartment preignition is bound to occur, and that means the trouble of decarbonisation.

A slipping as well as a fierce clutch is a misery. Either the cone or single plate lined with Ferodo or leather is satisfactory. In addition this type is simple to adjust or can be. I say this feelingly as on some cars clutches are introduced in such a way that their removal to re-line may cost as many sovereigns as the shillings expended on the lining. Ease is also essential to increase the tension of the clutch spring or springs. The arrangement on the Overland in this respect struck me as ideal. A good many clutches are covered in; it is well to protect them thus. It is, however, abominable to try and take out split pins and increase the tension of a clutch-spring by tightening nuts, through a trap-door, say, three by two inches, to get at which, in addition, calls for acrobatic contortions. Many gear-boxes are bolted directly on to the engine. The advantage of this unit construction is perfect alignment, and the elimination of a universal joint between the gear-box and engine. Still on many this causes the complications I have just mentioned—difficulty in dismembering the clutch. Everything in this world, including the automobile, is a compromise.

Forward Gears.—Fabric Universal Joints.

The matter of three or four forward gears is unimportant, except that four means an increase in production cost, and therefore purchase price. A geared-up fourth speed permits of faster running on the level, otherwise there is little advantage. Regarding the position of the change-speed lever, use soon makes either the side or the central seem preferable; the former means more room for the front passenger, the latter permits of a door and thus a means of exit on the driver's right.

Fabric universal joints for the transmission shaft, as used on the Standard and Waverley cars, are becoming popular. They have the advantage of neither needing lubrication nor of becoming noisy. For the final drive spiral gear has much in its favour, though on some cars the worm is still used. A few cars, such as the small Talbot and the Rhode, are constructed without a differential. It does not seem to cause any difficulty in driving or turning, though it is suggested that the skidding, which must result, may cause excessive tyre wear. During the war, in France, there was at one time a shortage of spider pinions for the differential of the Rover and Sunbeam cars used at the front. They were urgently required, so the differential was temporarily done away wth. The result, as might be expected, in cars of that size (they were ambulances) was not satisfactory. Most modern carburetters give satisfaction. The Zenith, S U, Solex, and Claudel certainly deserve mention, especially the latest type of the first-named. The points to make sure of are accessibility to the strainer and jet or jets. I have seen a car, on which the shield had to be dropped to get under the carburetter to remove the jet, or if this was not done, the exhaust manifold had to be disconnected to get the carburetter off. For simplicity the gravity petrol tank under the bonnet is impossible to beat. For convenience of space a pressure-worked rear tank is often employed. It is efficient, but I must confess to a preference, as already mentioned, for the gravity one under the bonnet. The Autovac, as used on the "tanks," is reliable, provided the owner does not neglect to keep it clean, otherwise trouble not only may but is bound to occur. For ignition the results are equal with either coil or magneto. The former, now that generators are fitted and keep the accumulators fully charged, is quite good. The objection is that it is not much use charging accumulators if the acid level is not maintained. Those who neglect to do so rather unjustly condemn the coil. I believe this is the reason the Talbot-Darracq have changed back to the magneto. The Wolseley favour the coil. A self-starter is now a sine qua non. It should be fitted so that if the pinion jams it can be removed without too many awkward postures.

On the cheaper cars thermo-syphon cooling is popular. Provided the water pipes are of sufficient size, it is satisfactory, but I must say I prefer a pump-propelled circulation, and one too with (on the larger cars anyway) a thermostat attachment, which maintains a constant water temperature. As to air-cooled engines, some are satisfactory, though my feelings are in favour of the water-cooled. The engine lubrication is now excellent on nearly all cars; it is by pump with an indicator on the dash to show that the oil is circulating, and a rod to show the depth in the sump. For the chassis I should insist on lubricators fed by a grease gun; it saves much cleansing of hands and gloves.

Brakes, Springs, and Tyres.

Many brakes now both operate on the rear axle drums. This method seems preferable to having one on the cardan shaft and the other on the rear wheels. The transmission shaft brake, though efficient, is not healthy for the life of that part. Front wheel brakes, when adjusted and kept in adjustment, with all the moving parts lubricated, are ideal, as was pointed out in THE LANCET of Nov. 14th, 1908, when the Allen-Liversidge original type was tested. The Buick are now fitting them as standard, but as yet few of the well-known British manufacturers have done so, though some fit them to order. For ordinary use I question their need, anyway they are not a necessity.

The question of comfort in driving depends on the springing of the cars; cantilever, three-quarter, and half elliptic all have their advocates. I believe that the first two give the best results, provided that the springs are kept lubricated. Any type that as a result of wet and mud has become rusted into a solid piece is inefficient. Some protective covering, such as the Duco leaf-spring gaiter, does enable a spring to function, by allowing each component leaf to move on its neighbour and thus absorb road shocks before they reach the car. The Gabriel snubber is a satisfactory device to eliminate rebounding. It is fitted as a standard on the Morris-Oxford car.

What looks like a promise of an increase of comfort is shown by Messrs. Michelin and Dunlop in the shape of larger tyres, which are constructed for use with a very low pressure, 16 to 20 lb. The cushion effect is said to be marvellous and with rebound snubbers may do away with all need for shock absorbers. The question to be solved is whether, by increase of road friction, they will lead to a larger petrol consumption. The point of retention in position has been met by the Dunlop firm, by an alteration in the method of attachment. They are, of course, still somewhat in the experimental stage.

Some Suitable Cars.

Among cars suitable for inspection can be named, among the light two-seaters at £160 to about £200, the Austin, Citroen, Gwyne 8 h.p., Hands, Humber, Morris-Cowley, Rhode, Standard, and Wolseley. For larger cars at from £400 to £500, the Angus-Sanderson, Armstrong-Siddeley (£360), Austin (£450), Calcott, Clement-Talbot, Crossley (a wonderful 15 h.p. at £420), Cubitt, which is a powerful mount at £340, Talbot-Darracq, De Dion, Fiat (now reduced to £420), Humber, Morris-Oxford, Renault, Standard, and Swift, while those who do not mind going to a little higher price should certainly look at the Sunbeams, Rovers, and larger-powered Wolseley; the 14 h.p. of the latter make seems very good value, as well as the Rover. For a really good American, which is now built in England, the Overland in the neighbourhood of £300 is a good proposition. Among other American cars the Dodge and Durant are worthy of attention, as well as the Maxwell at £330, the Buick at £375, and the six-cylinder Studebaker, made in Canada, at £385.

PRIVATE WARDS AND BEDS IN THE LONDON HOSPITALS.

IN view of the professional and public interest aroused by recent announcements of the institution of paying beds in some of the larger metropolitan hospitals, and of the difficulty sometimes experienced by practitioners in actually placing an individual patient in such beds, we have endeavoured to ascertain from the secretaries of various hospitals under what conditions paying patients are admitted. The answers received are summarised in the table given below, and show that at Guy's, St. Thomas's, and King's College Hospitals certain arrangements are made in this direction; as also at the Royal Northern, the Hampstead General, the three hospitals controlled by the Seamen's Society, the Bolingbroke, the Willesden General, and two or three others.

There are no private wards for paying patients of moderate means in the following hospitals: St. Bartholomew's Hospital, London Hospital, Middlesex Hospital, St. George's Hospital, St. Mary's Hospital, Royal Free Hospital, University College Hospital, Prince of Wales's General Hospital, Hôpital et Dispensaire Français. The West London Hospital and the Westminster Hospital are now making arrangements to provide accommodation for paying patients, and the Miller General Hospital hopes to do so in the new wing next spring. The Italian Hospital has the matter now under consideration, and at the Royal Free Hospital it is hoped in the future to provide such accommodation on an adjoining site.

Interesting Points.

Many interesting questions arise in connexion with private beds in general hospitals, especially in view of the contributions towards maintenance now asked from patients in general wards of many hospitals if they are judged able to afford them. Separate payment to members of the staff appears to be a fairly general feature, and concessions in the way of more visitors and extra or daintier food are allowed in certain hospitals. Of the undergraduate teaching hospitals Guy's, St. Thomas's, and King's College Hospital have private beds more or less attached to the hospital, and the Royal Free and Westminster hospitals hope to provide such beds in the future. At Guy's and St. Thomas's the private ward or block is a separate entity, with a salaried medical officer whose services are available free to the patients. Students from the medical school are excluded from these wards, and the food and cooking are on a different plan from that of the hospital. At King's College Hospital reference to the table given below will show that an attempt at grading is made, which may at

Name of hospital.	Private wards (p.w.).	Cubicles.	Private rooms (p.r.).	Total beds.	Fees in guineas per week.	Extra fees for staff, if any.	Visitors.	Remarks.
Guy's Hospital.	1	24		24	5	Salaried R.M.O. gives services free of charge. If necessary member of hon. staff is consulted and fee for treatment or operation arranged privately between him and patient. No proportion of maintenance fee is paid to staff.	Daily 9–12 and 2–5 instead of twice weekly.	Students in medical school are not admitted to this ward for teaching purposes. Separate kitchen and kitchen staff.
St. Thomas's Hospital (St. Thomas's Home).		40		40	5	R.M.O. attends free. Consultation paid for by patient.	Daily 3–5.	Food is better in home than in general hospital.
King's College Hospital.	3		13	44	p.r. 6 to 8, p.w. 4½ to 5.	Payment to be made to members of staff is arranged by house governor on admission of patient.	Daily instead of twice weekly.	Slight difference in evening meal provided for private patients. Patients in p.r. are not available for purposes of demonstration to students. In case of patients in p.w. the member of staff attending them may be accompanied by his students.
Royal Northern Hospital.	2	46	18	66	p.r. 4 to 6, p.w. 2 to 4.	Patients in p.r. pay moderate fees to consultants, who must be on staff of recognised hospital, but not necessarily the Royal Northern.	Sundays 1.30 to 3. p.r. 5–6 daily. p.w. 5–6 twice weekly.	Special wards primarily intended for residents in North London. Two beds for paying patients available at the Reckitt Convalescent Home, Clacton-on-Sea.
Hampstead General and N.W. London.	3		6	20	p.r. 5, p.w. 3.	Fees to staff by arrangement.		Patients in p.r. have evening meal, in place of cocoa, milk, or bread-and-butter.
Dreadnought Hospital.	4			8	From 3.	Any amount paid additional to cost of maintenance, approx. 3 gns.		Practically no difference in food served to paying and non-paying patients, but table-napkins, tray-cloths, bed-tables, &c., are afforded to the former.
Albert Dock Hospital.	2			3	,,	,, ,, ,,		,, ,, ,,
Hospital for Tropical Diseases, Endsleigh Gardens.				30	From 5.	Patients who can afford it pay staff a weekly fee.		,, ,, ,,
Willesden General Hospital.				15	From 3½ to 6.	By arrangement with doctor attending, who need not be attached to hospital staff.		
Bolingbroke Hospital (Wandsworth).	2		4	12	p.r. 5 to 6, p.w. 4.	R.M.O. attends free, but a fee is payable to members of hon. staff.	Daily.	Patients are given special consideration in the matter of food; late dinner is provided.
Queen Mary's Hospital for the East End.			4	4	5		No fixed times.	Food identical with that served in rest of hospital.
Hospital of St. John and Elizabeth.			10	10	From 8.	Paid direct to staff by patients.		Patients attended by their own medical men.
St. Andrew's Hospital (Dollis Hill).			9	45	p.r. 8, p.w. 2½ to 4.	Patients in p.r. arrange fees with med. staff. Patients in wards pay reduced fee to med. staff.		No patient is received except on the recommendation of his own doctor. Patients unable to pay 2½ gns. are received free as far as is possible.

ome time cause discontent either among the patients r in the medical school. Patients who pay 8 guineas week in private rooms (special treatment is extra, ıch as massage 10*s*. an hour, X ray treatment from guineas a week, barium meal 5 guineas) are immune om the attendance of students. Those in private ards may apparently give or refuse their consent r the member of the staff attending them to bring is students to their beds on a round. The wording f the rule on this point suggests that in any case ıese patients will not be available for examination y students except in the presence of their chief, but nly for demonstration purposes with their consent. nasmuch as the wards opened for private patients t King's College Hospital appear to be those which ere previously closed for lack of funds, no present ardship for students exists. However, admission of he principle that patients, who already pay maintenance fees, may by paying an additional guinea or two er week acquire the right to refuse examination by tudents has its dangers.

Another interesting point is that of telephonic ıquiries about patients, which are not answered at King's, nor, indeed, at most large hospitals. A atient who pays a fee of 8 guineas a week, which is ot in excess of that asked in many a nursing home, ıay dislike being deprived of this facility on his iends' behalf. Against this, however, is the feeling of curity which the nervous patient in a large hospital ell staffed by resident house surgeons and physicians ıust feel, compared with the anxiety often experinced in a nursing home without a resident doctor. Ve believe that, on the whole, patients of moderate ıeans will be glad to avail themselves of the opporunity to go to a hospital when they are ill, and that heir advent will do much to raise the standard of omfort in the general wards by calling attention to he therapeutic value of properly served, hot food, of ermission to smoke, and of other amenities which ıay increase slightly the cost of administration, but ill give quite disproportionate amount of satisfacion to patients.

SCOTLAND.

(From our own Correspondents.)

The Insurance Position in Glasgow.

About 250 medical men, including representatives rom Lanarkshire, Ayrshire, and Stirlingshire, attended meeting held on Oct. 23rd in Glasgow. The report f the local Medical and Panel Committee was conidered, and Dr. H. G. Dain, Birmingham, outlined he history of the dispute and its present position. A hort statement was then made by Dr. J. R. Drever, he Scottish secretary of the B.M.A. The meeting ınanimously decided: (1) To support the Insurance Acts Committee; (2) to put into force immediately the ollective bargaining scheme. By the 28th the resignaions of 86 per cent. of panel practitioners were in the ıands of Dr. J. G. McCutcheon, the secretary.

Anderson College of Medicine: Opening Address.

At the opening of the winter session of the Anderson 'ollege of Medicine a lecture was delivered by Sir Ronald Ross. The lecturer took as his subject the Management of Medical Research. He briefly recapituated the advances made during the past 20 years n the field with which his name is associated s pioneer; advances which rendered possible, by fficient hygiene, the construction of the Panama 'anal, and the successful campaign against malaria onducted by Malcolm Watson in the Federated Malay States. These triumphs were achieved by the iecing together of much painstaking investigation; nd that not only, as the lecturer insisted, in medicine lone, but also in the sister sciences of physics, hemistry, and zoology. Sir Ronald Ross went on to ay that the value of combined investigation of this ıature was for centuries unrecognised. The earlier undamental discoveries in the history of the world were made by what he called "private enthusiasts"—men whose living was often precarious, and not infrequently attained by the practice of a popular but remunerative offshoot from their life's work. Thus Kepler: "Mother astronomy would surely starve but for the earnings of her daughter astrology." Subsidised research began with the observatory of Tycho Brahe, which, although no new principle emanated from its walls, yet supplied the data from which the wider perspective of Kepler and Newton revolutionised the science. Research as a profession had come tardily and incompletely into its own during last century, with the founding of the Pasteur and Jenner Institutes, and at the present time not only medicine, but also both pure and industrial science supported skilled investigators over all the world. In this country the Government had accepted the principle with the founding of the Medical Research Council. Regarding the conduct of purely medical research, Sir Ronald Ross distinguished two schools of thought. One, "the Bulls," would have all available money spent upon the equipment and maintenance of bodies of skilled investigators, in the hope that the mere bulk of work done would yield here and there a fact of vital importance, although much of the work might be erroneous or incomplete. The other, "the Bears," replied that while it was easy to carry out the first plan, the genius behind an epoch-making discovery could not be bought. In support of the first school the lecturer pointed out that science required for its advance both the collection of facts and inductions based upon them. Thus Darwin consolidated the observations of Buffon and Linnæus in the "Theory of Evolution"; modern bacteriology presented in a new light age-old observations upon the characters and symptoms of human disease. Again, the elucidation of a given problem required observations by many workers, each skilled in his particular branch. Waste was inevitable, but justified by the end. On the other hand, many of the great discoveries in the history of medicine had been made by men who were neither subsidised nor equipped with an adequate laboratory —Harvey, Jenner, and Lister among them. Their laboratories, said the lecturer, were in their brains. Unfortunately the reputation of having a laboratory leaning was even to-day sometimes injurious to practice; so that the doctor was tempted, even on occasion obliged, to shun laboratory investigation. The private enthusiast could not be discovered until he had done his work, but Sir Ronald Ross thought that the least the State could do for him after discovery was to repay his expenses, and the most, to enable him to continue at work. The apathy of the great majority of human beings to the subsidy of medical research was amazing to the lecturer; their money was too often applied to futile projects, for they ignored the personal menace of disease. The lecturer concluded by exhorting his hearers first to practise the cure or prevention of sickness, and, if possible, in their leisure to try to solve some problem in science.

Aberdeen Medico-Chirurgical Society.

A meeting of the Society was held on Oct. 25th, when the President, Dr. Alexander Ogston, delivered his presidential address on Observations on Some Modern Methods of Anæsthesia. Dr. Ogston first gave a brief survey of the methods of anæsthesia in common use in Aberdeen within his own experience, pointing out that up to about 1917 the method in practically universal use was the administration of chloroform, or in rare cases ether given in a cone-shaped towel. As long ago as the early eighties of last century Dr. Blaikie Smith, however, had devised and used with a certain amount of success a special inhaler of leather and metal with flannel padding for the administration of open ether. About 1917 open ether came into more common use, having been brought to the notice of the anæsthetists by Sir Henry Gray after a visit to America. Dr. Ogston then discussed this method, indicating its difficulties, and describing the various methods in use and the types of apparatus, including his own special mask which prevented the diffusion of the ether vapour. The intra-tracheal and rectal methods were specially referred to. Nitrous oxide and oxygen as an anæsthetic was then discussed and apparatus shown; modern improvements were indicated, and the use of this anæsthetic with the addition of ether or of chloroform and ether described.

Nobel Prize Awarded to Prof. J. J. R. Macleod.

Dr. J. J. R. Macleod, professor of physiology in the University of Toronto, has been awarded the Nobel prize for medicine for 1923, along with Dr. Banting. He is a distinguished graduate of Aberdeen University, and a son of the Rev. Robert Macleod, Senior Minister of John Knox U.F. Church, Aberdeen. Prof. Macleod was educated at the Aberdeen Grammar School and at Aberdeen University, where he graduated M.B., Ch.B., with honours in 1898. Four years later he obtained the degree of D.P.H. at Cambridge University. After studying at Leipzig and Berlin, he became demonstrator of physiology at the London Hospital, later lecturer in chemical physiology and pathology in the Sir Andrew Clark Institute, London. During the following year he was appointed professor of physiology at the Western Reserve University, Cleveland, Ohio. In 1918 he took up his present post. In 1913 he published his paper on diabetes. The research work, which resulted in the discovery of insulin, was carried out in the Toronto laboratories under his supervision.

IRELAND.

(From our own Correspondent.)

Dublin University Biological Association.

At the opening meeting of the Dublin University Biological Association, held on Oct. 27th in Trinity College, Dr. George E. Nesbitt, President, gave an address on Modern Developments of Medicine. Having touched on various other topics, he devoted most of his time to the study of kidney disease and to the modern treatment of diabetes. He gave the results of his experience with insulin, and expressed the opinion that 75 per cent. of cases of diabetes could be controlled by dietetic measures without resort to insulin. Prof. Hugh MacLean, of London, was the principal speaker. He discussed the relations that should exist between bedside and clinical laboratory work, and defended the teaching of laboratory methods to medical students. He agreed with Dr. Nesbitt that much might be accomplished by dietetic measures for the treatment of diabetes, but his experience was that invariably the case at some time went out of control, even when the dieting was very careful. The patient that kept to the diet laid down might get on all right for a year or two or more, and in the end show sugar. He believed that modern dietetic work had done quite a lot to lengthen the life of a diabetic patient, say, from two or three years to six or seven years, but that was all that it had done. That was his experience in the hundreds of cases that he had treated.

Dr. Henry F. Moore, in seconding a vote of thanks, announced that the price of insulin was about to be reduced by half. Other speakers were Sir Thomas Myles and Prof. W. Caldwell.

The Local Government Board and Private Practice.

The Council of the Irish Medical Association had under its consideration last week the report of an inspector of the Local Government Department dealing with complaints made against the medical officer of the Birr Hospital. The complaints were found to be groundless, and the patient at any rate had no claim to attendance from the medical officer in question. The report, however, went on to say:—

> “The charges are obviously not of a serious nature, but they involve principles which must be clearly defined . . . Obviously a doctor, and more especially a medical officer in receipt of salary from the rates, when called upon to attend an accident case, is not justified in assuming from the statements of a lay person that his immediate attendance is unnecessary, and that the case can wait for the presence of another doctor whose particular duty it is to attend to it. . . .”

A copy of this report was forwarded to the local authority under whom the medical officer serves. The Council of the Irish Medical Association has registered a protest against the action of the department by passing the following resolution:—

> That the Council had under consideration the report of the Local Government Department Inspector in regard to charges brought against Dr. Fleury, of Birr, in which report a certain degree of blame is attributed to Dr. Fleury. The Council begs leave to point out that Dr. Fleury's services, for which he is paid by a public authority, are limited to attendance on patients admitted to the hospital of which he is medical officer. Dr. Fleury is under no obligation to attend accident or other cases outside the hospital, and such attendance would be merely an incident of private practice. The Council, further, is unable to concur in the assumption of the inspector that “a doctor and more especially a medical officer in receipt of salary from the rates,” is liable to censure or control by the department in regard to the conduct of his private practice.

A copy of the resolution was ordered to be sent to the press, as well as to the Ministry of Local Government.

Oct. 30th.

UNITED STATES OF AMERICA.

(From an Occasional Correspondent.)

An Employment Agency for Consumptives.

It is now several years since the United Hebrew Charities and some other Jewish organisations in New York launched the Altro shop—an industry in which only the tuberculous were to be employed. Both from the financial and the therapeutic points of view this shop has proved a very noteworthy success. The patients or workers are under constant medical supervision and are not permitted to do more work than the doctor prescribes. Care is taken that their wages shall never be insufficient to provide for themselves and their families; at the same time an ingenious arrangement of rewards prevents any inducement to practise “soldiering.” The shop is situated in the Bronx district and the workers therefore travel out to work and home from work in the opposite direction to the flow of heavy traffic during the rush hours. So impressed have been the officials of the National Tuberculosis Association with the success of this small enterprise, that they have now designated a member of their staff to make a special survey of the industry. At the same time there comes from the director of the New York Tuberculosis Association, Mr. J. Byron Deacon, a very important announcement concerning an experimental labour bureau which they are about to furnish for the benefit of tuberculous citizens of New York. The purposes of this bureau were announced to a recent meeting of the New York City Conference of Charities and Correction as follows:—

1. To study industries and analyse the jobs therein, in order to discover suitable occupations for persons with tuberculosis in quiescent or arrested stages.
2. To give vocational counsel to and find employment for persons in arrested or quiescent stages of tuberculosis, making the initial contact in the sanatoria where possible, coördinating the work with the medical and social services of tuberculosis clinics, sanatoria, and family welfare agencies.
3. To precede placement with thorough medical examination and to follow placement with intensive medical and social service supervision.
4. To broaden the opportunities for suitable employment for the tuberculous by a campaign of education of employers.
5. To develop, in connexion with the existing training schools for the handicapped, and with selected industrial establishments, facilities for trade training for individuals who cannot be placed directly at suitable remunerative work.
6. To study and interpret the experience derived from the aforementioned activities for the benefit of tuberculosis agencies generally.

The bureau is known officially as that of vocational service for the tuberculous. Its staff consists of an executive, a medical consultant, two placement secretaries, a medical social worker, and a clerk-stenographer. The funds required to support this work for the next three years are assured by a gift of $40,000 from the Laura Spellman Rockefeller Foundation.

A Medical School Dormitory for Harvard.

"Ninety-three men live as one of a group of students." This is a sentence taken bodily from the report of the Temporary Dormitory Committee of the Harvard Medical School Alumni Association. It represents, probably, one of the reasons why Harvard Medical School should be endowed with a "dormitory." The uninitiated, who are not able to understand from sentences such as this just why the committee recommend a dormitory, can nevertheless easily imagine the advantages of such an institution. The new Harvard building is to house 225 students in 200 rooms and is to include an assembly hall with seating accommodation for 500. As there is at present no large auditorium in convenient proximity to the buildings of the medical school, the projected hall is likely to prove very useful. The cost of buying the site and erecting the dormitory will amount to close upon one million dollars, a sum which is to be raised among Harvard medical graduates and their patients.

American Posture League.

It has been the consistent policy of the American Posture League to combat ill-shaped boots, badly tailored coats, deforming corsets, and other enemies of posture by promoting the advertisement and sale of clothing which they have approved. A firm is found which is willing to coöperate—and such firms cannot be difficult to find—whereupon a committee is appointed by the League to investigate the anatomical requirements and the most satisfactory method of meeting them. Thus, by the committee on shoes there were secured tracings of several thousand average feet, including the feet of Indians and Chinese who never had worn any footwear. Three categories of feet were found, represented in men and women alike and among the unshod as well as among the civilised. A firm was found willing to issue footwear of the three types designated inflare, straight, and outflare, and their products are now sold with the official approval of the League. The latest development along this line is announced in their annual report, just published. It is the Postur chair, built of steel with a wooden seat. The latter is adjustable both as regards height and declination. The back is designed to support the sitter in the small of his back, and is so hinged to the seat that it always conforms to the ideal posture, though its height is adjustable through one and a half inches to conform to the sitting height of the individual. These chairs are made in varying heights and should meet the requirements for industrial seating in the legislation of various States.

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[1] American Posture League, 1, Madison-avenue, New York, N.Y.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College announces that the next award of the Alvarenga prize, amounting to about $300, will be made on July 14th, 1924, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the College on or before May 1st, 1924. Each essay must be sent *without signature*, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1923 has been awarded to Dr. Edward P. Heller, Kansas City, Mo., for his essay entitled Treatise on Echinococcus Disease.

THE PANEL CRISIS.

FURTHER CORRESPONDENCE BETWEEN THE MINISTER OF HEALTH AND THE INSURANCE ACTS COMMITTEE.

THE following letter from the Minister of Health, dated Oct. 26th, has been received by the Medical Secretary, British Medical Association:—

I have read two letters from you in the press upon the dispute, I will not say between us, but regarding the position and payment of panel doctors. This dispute is, if you will forgive me for saying so, both undignified and unprofitable, as I am quite convinced that you and I are really animated by the same desire—namely, to do what is best for the country as a whole. Before, therefore, the suggested "strike"—a word of ill omen as applied to your great profession—is made effective, I am very desirous that the profession, the societies, and the public should realise what my position is and on what it is based.

As Minister of Health, what I have to aim at is to secure the best medical service I can without putting undue strain on the taxpayer, the employer, and the insured person, who are all partners in the matter. The medical profession, on their side, naturally desire to obtain the utmost remuneration consistent with their views of fairness. The societies, on their side, naturally desire to obtain as much advantage as possible for the millions of insured persons under the provisions of the National Health Insurance Acts. I have to take account of both standpoints, but the final test for me is what is best in the public interest. What have I done? I found the controversy in being when I came to the Ministry of Health. At once I took steps to acquaint myself with the position, and studied the claim made on behalf of the profession in August. I saw both the Consultative Council of Approved Societies established under Order in Council to advise me on insurance questions, and other representatives of the approved societies, and I finally saw the Insurance Acts Committee of the British Medical Association.

Two things had to be considered: (1) What is a fair price to pay the practitioner for his services? and (2) what is the position of the insurance funds? The profession claim that at least 9*s.* 6*d.* is the fair price. A considerable body of opinion among the approved societies claims that 7*s.* 3*d.* is the fair price. I decided that 8*s.* 6*d.* for three years or 8*s.* for five years is the fair price, and offered it, giving my reasons fully. But I was not so foolish as to make the offer before seeing what is the position of the insurance funds. In these days of unemployment and over-taxation, I simply cannot ask the Government for a further subsidy, or put on extra contributions, unless the paramount public interest says that I must get more money in one way or the other. A great many statements have been made in various quarters as to reserve funds in the National Health Insurance accounts, out of which it was claimed that a fee of 9*s.* 6*d.* or more than 9*s.* 6*d.* could easily be found for the doctors. The famous millions which bulk so largely in the controversy consist mainly of a reserve fund built up by payments of the younger insured people, who in their earlier days are not often disabled by illness. But the fund is actuarily essential to meet the heavy claims of later years at an age when sickness is almost certain. Clearly this fund cannot be touched.

Then there are various smaller funds, some reinsurance funds like the Central Fund, some like the Deposit Contributors Fund and the Exempt Persons Fund, held for special small sections of the insured population, but not one accruing from unpaid doctors' fees, as has been suggested since the whole of the money found for fees, even in respect of insured persons who do not select a doctor, is distributed each year to the doctors on the panels. All these matters were fully investigated, and after consultation with the Government actuary, I found that the fee which seemed to me fair on the merits could reasonably be charged to the funds for a limited period, without endangering the benefits either statutory or additional secured to the insured. First, therefore, I came to a decision on merits. Then I found that the money was available. Then I made my offer, and I stand by that offer.

Now I come to the suggestion that the question should have been referred to arbitration. This was obviously an easy way for a Minister out of a difficult question. But is not one of the cardinal points which you are now making that the profession in this matter of remuneration, while agreeing that if I like, I can consult the approved societies, wishes itself to be clear of them? If arbitration ensues, then there must inevitably be three parties—the Minister, the profession, and the approved societies. You will have to come into direct relation with the societies, whether you like it or not, and in refusing arbitration I have, in fact, to a great extent been thinking of your standpoint, feeling that it would easily put you and the societies in a position good neither for you nor for them, nor for your patients.

In this connexion I call your attention to your statement in your letter published in the *Times* of Oct. 22nd : "If it is firmly and irrevocably understood that the question of the kind of medical attendance to be given under the insurance system and the payment for it is a matter to be decided, not by the approved societies or under their financial pressure, but by the Minister of Health, after consultation with all parties concerned, &c." This is the attitude I have throughout the controversy taken, neither more nor less. But the moment I make a decision in accordance with your own view of the Minister's duty, you say it is an offer which you cannot accept.

You go on to suggest that some concession should be made to the peculiar conditions of rural practitioners. Are not the officers of this department discussing that very matter with you at this moment with the earnest desire to arrive at a satisfactory conclusion ? Have they not told you that I personally intend to do all in my power to improve the position of the rural practitioners ? Finally, may I add that I am not enamoured of the panel system, and if the doctors would prefer at an earlier date than was anticipated a full inquiry into the best method of dealing with medical benefit, including, of course, the question of doctors' fees, I am willing to submit to my colleagues in the Cabinet a proposal for an early Royal Commission on the whole subject, and to undertake that the fee now suggested should be reconsidered in either direction as soon as the Commission reports.

A reply as follows, dated Oct. 27th, was sent by the Medical Secretary to the Minister :—

I am obliged by your letter of the 26th instant, and I agree that the dispute on the position and payment of insurance practitioners is unfortunate. It is, however, none of our seeking. The medical profession hates this periodic dragging of its affairs before the public, and would go a long way to avoid it, but it seems to be inherent in the constitution of the panel system. One of the reasons which has compelled us to make a stand on this occasion is to minimise the risk of future exhibitions of the kind.

I note your use of the word "strike," which I would point out is entirely misleading. The resignation of doctors in present circumstances does not mean that they will cease their work for their patients, but merely that they cannot do it under the conditions offered. Let me say quite definitely that the main point at issue is not the money, though I am convinced that your present offer is inadequate. The main object with which we are pursuing this dispute is to maintain a good medical service for the industrial population, and to have it settled once and for all what is the relation of the approved societies to the medical service and the doctors who provide that service. You say that your attitude has been that the question of "the kind of medical attendance to be given under the insurance system and the payment for it is a matter to be decided not by the approved societies or under their financial pressure," but by yourself after consultation with all parties concerned. But the fact remains that the approved societies are threatening you with all sorts of consequences if you take more than 7*s.* 3*d.* (or perhaps they will graciously allow you to make it 8*s.*) out of what they are pleased to call "their funds," and responsible leaders of the societies are saying to the public that the doctors' demand may mean bankruptcy to some of the smaller approved societies. One responsible organ of the insurance world declares that "if 9*s.* 6*d.* is paid to the doctors the insured person is being robbed of additional benefits for the advantage of the doctors." Can you wonder that in face of the growing pretensions of the approved societies we believe that whatever you or they may say, the societies are in effect demanding to be made the arbiters of the price that is to be paid for the medical service under the National Health Insurance system, and the medical profession will never allow such a position to be established either implicitly or explicitly.

I am sure that before this dispute is ended it will be necessary for you to make it plain by legislation, or in some way other than the declaration of even a responsible Minister —because Ministers change—that the position is not such as the approved societies claim ; that medical benefit is the basis of the whole National Health Insurance system ; and that the conditions of this service and the remuneration to be paid for it are matters to be settled by the community and not by any section of the community.

As to the question of the capitation fee, I am bound to say that you have entirely failed to convince any of us that 8*s.* 6*d.* is the equitable fee, taking all present circumstances into consideration. The profession regards the award of the arbitrators in 1920 as the bed rock from which it starts, and no amount of calculation by experts will convince either the doctor or the man in the street that 8*s.* 6*d.* will buy now, or is likely to buy within the next year or two, what 11*s.* bought in 1920. We are, however, still prepared to enter into negotiations with you, as representing the community, as to the exact value of the services we are asked to render. We do not, however, consider that being presented with a decision which we are told to accept or refuse is the same thing as negotiating. Moreover, the profession has convinced itself that there is in the National Health Insurance Fund sufficient money to pay the present fee of 9*s.* 6*d.* or even more, if the basic and essential nature of medical benefit be firmly established.

A good many wild statements have been made about the millions in reserve. So far as I am aware no responsible person on our side has suggested more than that the unexpectedly low demands on sickness benefit and the unexpectedly high rates of interest earned by the fund have given the Ministry a margin with which they could quite well pay the present fee without infringing on any of the benefits that are now being given to insured persons and without calling upon either the State, the employer, or the insured person for any additional contribution. I am not aware of anyone with authority to speak for the doctors who has suggested that there is a fund accruing from "unpaid doctors' fees" out of which the money now required ought to be found. We who speak for the profession know that all the money put into the central pool for the payment of doctors is distributed each year to the doctors on the panels.

Your suggestion that arbitration, if granted, would necessitate the approved societies coming into the matter is one which I cannot admit for a moment. It could only be admitted if you were to give our case entirely away by agreeing that the money paid to the doctors for providing a national health service for a large section of the community is taken out of a fund belonging to the approved societies. We cannot admit this. We feel that such was not the intention of Parliament, and if we are proved to be legally wrong it is, in my opinion, essential that the position should be altered at once. You will never get a contented medical service if the approved societies are to be placed in this position. We are quite ready for arbitration at any time on the lines of 1920—namely, as between the Minister and ourselves.

I gladly acknowledge that the officers of your department are at the present engaged in discussing the peculiar conditions of rural practitioners. I sincerely trust that you may be able to meet their exceptional and legitimate demands. I also freely acknowledge the personal interest you have shown in this matter.

Finally, let me say that the profession is prepared for a full inquiry, either Departmental Committee or Royal Commission, at any time you like, provided it *is* a full inquiry which will take into consideration not only the doctors' fees but the administration of the Act all round. It is, however, not usual, I believe, to suggest that a party to a dispute should accept a reduction in remuneration pending the report of an inquiry. I venture to suggest that you should follow the ordinary course and leave the capitation fee as it at present stands until the Royal Commission or other body appointed has reported. We should, of course, be willing to be bound by the report of such a commission, just as we would by the opinion of independent arbitrators dealing with this matter as between ourselves and you.

The Proposed Terms of Service:
Mr. H. S. Souttar's Address.

Presiding over a discussion at the Marylebone division of the British Medical Association on Oct. 26th, Mr. Souttar said that the alternative subjects—"The proposed terms of service of the panel practitioner" and "The future of the panel and the hospitals"—proposed for discussion arose from the uncertainty which existed as to the precise course of events, and he went on to say :—

But I venture to think that the alternatives are merely different aspects of the same subject. Indeed, for those who have studied the question at issue it is difficult to escape the conclusion that the future of the whole medical profession is bound up in the present conflict. It is no question of a sixpence less or a sixpence more that is at stake. The issue we are fighting is to determine whether we shall be the servants of the State or of the approved societies. If we lose, these wealthy corporations will be left absolute masters of the national insurance of our country, the Ministry of Health will have to do their bidding, and I ask you how long will it be before our great hospitals are absorbed under the title of additional benefits. If we win, as I am convinced we shall, we shall be able to dictate our own terms and to lay the foundations of a thoroughly sound medical service, in which every section of our profession will be proud to share.

There are those who would have us believe that compulsory insurance is altogether wrong, and that contract service is altogether humiliating. Such men to my mind must lack both knowledge and imagination. The working man is absolutely unable in most cases to meet his doctor's bill when he is ill, and in the old days it was a regular practice in industrial areas for the doctor, having cured his patient, o send a collector round to dun him every week until the bill was worked off. Surely it is more in keeping with the elf respect of both doctor and patient that he should pay whilst in health, and know when he is ill that the service he receives is no charity and yet involves no debt. Those who have the widest experience of insurance practice tell me that compulsory insurance is the only basis on which our working class can get an efficient medical service, and common sense tells me that they are right.

With those who maintain that all contract service is humiliating I find it difficult to speak with patience. On what basis may I ask are our judges, our administrators, our civil servants paid, unless it is a contract for services rendered to the State ? Of course there are black sheep in every fold. They have even appeared in Harley-street. But those who condemn wholesale the contract system should remember that they are condemning the work of 4,000 members of our profession, perhaps on the evidence of a neurotic housemaid. I know personally of panel practices in Buckinghamshire, in Dorset, and in Stepney, run as clinics of the most modern type, with specialist ervices and with an equipment of a very high order. The fact is that contract work enables a man to treat his practice as a business proposition. He is certain of a definite income and it pays him to be efficient. The more efficient his arrangements the easier will be his work, the larger his practice, and the greater his return. The dignity seems to me to be far more with the contract man than with him whose practice is a series of windfalls.

I hold then that insurance for the patient and a contract for the doctor are essential in industrial practice. But what are the essentials of the contract ? I think they are two. He must be adequately paid and he must be free from commercial control. As to what constitutes adequate payment I do not propose to discuss. It must compare with the eturns of private practice, it must be sufficient to attract men of a good class, and it must be sufficient to enable them o live in circumstances agreeable to the important services hey are rendering to the State. Nothing could be more disastrous than a national insurance with an ill-paid and dissatisfied medical service. I will only ask this one question : Can the State afford such a service ? The answer is contained n the fact that the funds now accumulated by the approved ocieties total 100 millions, and that this reserve is being added to at the rate of 7 or 8 millions a year. How much of that great reserve is due to the labours of those very men whom these societies now revile as incompetent and proclaim as robbers ?

But even more important is the freedom of the doctor from commercial control. He must be the acknowledged ervant of the State, the man to whom is entrusted the health of his country. His certificates must pass as sterling, and not be liable to the control of penurious officials. And he must be able to obtain freely for his patients all that modern science can afford.

It is here, Mr. Souttar concluded, that we really ouch on the future of the panel. To my mind the panel system at present is only half a service. National health insurance can never be complete until the hospitals with their great resources form a part of it, until the patient passes naturally and by ight from his doctor to the hospital, when its special services are required. It will be a great day for the hospitals, for they will then be adequately paid for the work they do, and their financial difficulties will be over for ever. And it will be a great day for our profession, for we shall all take our share as members of one great national medical service. It is for this hat we are fighting, and I venture to think that it is a prize worthy of great effort and of great sacrifice.

THE ALLEGED APPROVED SOCIETY "CONTROL."

"Control" is a difficult word to define, and the acquisition of power by one section of the community over another may be an insidious process. It seems convenient to set out once again the sequence of events in regard to the relation of approved societies o medical benefit.

Local Administration of Medical Benefit.

The actual day-to-day administration of medical benefit is carried out by the local insurance committee, which (subject to instructions from the Ministry of Health) administers the Acts, regulations, and departmental decisions for the time being in force ; that is to say, as regards matters more closely affecting the insurance doctor it merely administers the decisions of principle which have, ex hypothesi, been arrived at centrally after central negotiation between the Minister and the representatives of the profession. As regards some of these questions the committee can act only in agreement with the panel committee. The committee is also responsible for making the necessary cash payments to the doctors, and for this purpose it receives from the central practitioners' fund the amount which the Minister, on the advice of the central distribution committee, has allotted to the area, this amount being shared out to the individual doctors of the area according to the terms of a local "distribution scheme" which is prepared jointly by the insurance committee and the panel committee. The actual day-to-day administration of medical benefit is thus not, in theory at least, under the control of the approved societies.

Constitution of the Insurance Committee.

We have seen how medical benefit for each area is administered by the local insurance committee. Insurance committees are so constituted that the approved societies, although having no officially recognised "control," can (and therefore do) largely influence the practical local administration of medical benefit. The committees vary in size from 20 to 40 members. Of these, three-fifths represent insured persons, and these representatives are mainly chosen by election and nomination by or through approved societies. The medical profession, on the other hand, is represented by two doctors appointed by the local medical committee, one appointed by the county or county borough council, and (if the committee numbers 30 or more) one appointed by the Minister. The remaining members consist of nominees of the local council, representatives of the chemists, and women members appointed by the Minister. This preponderating voice on insurance committees of representatives of insured persons does not, however, constitute the "control" to which the profession has more recently taken exception. The doctors have, it is true, frequently urged that their representation on insurance committees is inadequate ; yet it is recognised that the profession has in each area two committees of medical men—the local medical committee and the panel committee—which have to be consulted by the insurance committee on professional questions. Moreover, it was generally felt that, at any rate until 1922, all substantial amendments to the Acts and regulations which affected insurance practice were the subject of discussion and negotiation between the Minister and the representatives of the profession.

The New Factor Introduced in 1922.

In 1922 a new factor was introduced owing to a shifting of the sources from which insurance practitioners were paid. The original Act of 1911 proposed that the Exchequer should find two-ninths of the cost of medical benefit, but even before medical benefit had become operative the Exchequer contribution had to be increased to four-ninths, while under the Act of 1920 the State contribution was nearly 6*s.* 6*d.* out of a total of 13*s.* 9*d.* In 1922 the remuneration of doctors and chemists was reduced, and this reduction was used in its entirety to relieve the Exchequer. The Geddes committee, however, recommended that the Exchequer should be still further relieved, and that its contribution should be limited to the original two-ninths provided for by the 1911 Act. This might have been effected by increasing the weekly contributions of employer and employed, but in fact the consultative council to the Ministry, which embodies approved society experience, recommended that the contributions should be maintained at their existing rate and that, until the end of 1923, *the balance should be met out of the accumulated surpluses in the benefit funds of approved societies.* The National

Insurance Act of 1922 gave effect to this proposal, subject to a provision whereby the benefit funds were reimbursed, to the extent of one-third of their contributions, out of a central fund controlled by the Minister. Thus there was introduced the significant innovation that the surplus funds of approved societies might be used towards providing the general practitioner treatment which forms a part of the normal medical benefit of insured persons.

The Demands of the Approved Societies.

Concurrently with this proposal there arose a demand among certain approved society interests that, as the societies were to be called upon to contribute towards the provision of general practitioner treatment for their members, they should be given some direct and definite control over the conditions and terms of this service, and, in particular, that they should participate in any central negotiations which might precede any future alteration in the terms of service of insurance practitioners, including, of course, an alteration in the rate of remuneration. This demand has been increasingly urged, and much pressure has been brought to bear on the Minister of Health. It is this contemplated control or influence by the societies over the future conditions and development of medical benefit generally, and of insurance practice in particular, that the medical profession has consistently opposed.

A Public Definition Required.

No Minister of Health has yet publicly defined to what extent, if at all, the claims of the societies in this matter should or will be met. Sir Alfred Mond, on the second reading of the 1922 Act, said :—

> "Having regard to the provision in this Bill for contributions in relief of State expenditure from the surplus funds of approved societies, I think that it is no more than fair and reasonable that I shall give the societies an opportunity of expressing their views before any new terms of service are made with the panel practitioners. But the responsibility for accepting these contracts rests and will continue to rest with the Minister of Health. . . . There is no word in this Bill which modifies the existing statutory provisions."

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. E. R. Grazebrook is placed on the ret. list with rank of Surg. Capt.

W. F. Beattie is reinstated on the Active List as Surg. Lt.-Comdr.

Surg. Rear Admiral E. J. Finch is placed on the ret. list at own request.

Surg. Capt. F. J. A. Dalton to be Surg. Rear Admiral.

Surg. Lt. (D.) F. R. McCambley to be Surg. Lt.-Comdr. (D.).

ROYAL NAVAL VOLUNTEER RESERVE.

G. K. MacLennan, late temp. Surg. Lt. (D.), is transferred to the Permanent List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt.-Col. Sir M. H. G. Fell relinquishes the temp. rank of Col.

Maj. R. H. MacNicol is placed on the half-pay list on account of ill-health.

TERRITORIAL ARMY.

Capt. R. H. Hadfield (late R.A.M.C.) to be Lt., and relinquishes the rank of Capt.

Capt. L. F. E. Jeffcoat (late R.A.M.C.) to be Capt.

Lt. F. J. Lidderdale to be Capt.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions as Flying Officers : T. V. O'Brien and F. W. G. Smith.

The undermentioned are granted temporary commissions in the ranks stated : A. G. Lovett-Campbell to be Flight Lt. (hon. Squadron Leader) ; and G. R. Hall Flying Officer (hon. Flight Lt.).

Flight Lt. G. W. Allen (Capt., Army Dental Corps) relinquishes his temporary commission on resigning his commission in the Army.

INDIAN MEDICAL SERVICE.

The King has approved of the retirement of Maj. G. Tate on account of ill-health, and of the resignation of Lt. H. McNair.

Correspondence.

"Audi alteram partem."

THE FOUNDER OF THE LANCET: A PERSONAL REMINISCENCE.

To the Editor of THE LANCET.

SIR,—It is surely improbable that any other in our profession than my aged self who was in personal touch with the Founder of THE LANCET can yet survive in the flesh.

In 1812 "Tom," as I always heard him called, shared rooms in a small house built against St. Saviour's Church with Edward Heinekin and my father, John Grabham, as students at the Borough hospitals—then united. Both Heinekin, a profound naturalist, and Tom died at Madeira, where I still represent that bygone trio.

My first sight of Mr. Wakley was at a famous inquest when, as a boy, I was taken by an elder brother to that scene of seething excitement. Wakley, then M.P. for Finsbury and coroner for the district, went into his own witness-box, and I think did much by his terrific declamation to alienate everyone and to crush an adverse verdict in violation of the general consensus of surgical opinion. In the autumn of 1861 I was taken from the house surgeoncy at St. Thomas's, stuffed with knowledge but callow in worldly ways, to spend the winter at Madeira with Sir Julian Goldsmid and his consumptive brother. Mr. Wakley, who had developed pulmonary disorder, came with us, and Tom the second (T. H. Wakley, F.R.C.S.) confided his father to my care. We sailed on Oct. 8th in a small auxiliary steamer called the *Dane*, a 500-ton boat indicative of the embryonic stage of development of the now Union-Castle monsters, and arrived at Madeira, after a heavy gale, in nine days. The old man soon found out that I was well equipped in pulmonary matters, and we became warmly friendly. In those days we had no clinical thermometers, and no hypodermic needles, and I soon found that the bulk of those who crowded Madeira at that time had been brought up on kacoplasm and Blasius Williams. Wakley had extensive lung disintegration, and, though he improved to some extent, a modus vivendi with existing conditions was the most to be expected.

Besides Sir Julian Goldsmid and his brother I had in those days two companions—namely, Charles Tawney, senior classic of his year, and Cecil Monro, fifth or sixth wrangler and both Fellows of Trinity, Cambridge. We rode together every morning and paid our LANCET friend a daily visit before luncheon to listen to his sparkling denunciations of all things, visible and invisible. These explosions, perfect specimens of storm language, seemed necessary to his comfort, and he would grip my shoulder if I betrayed any impatience. His ponderous frame, searching eyes, and vivid animation held us spellbound as he changed with lightning speed from grievance to grievance. He told us story after story of the country general practitioner—"Go and bleed him and say I am coming"—and made us wonder how with so little knowledge and appliance such a good fight was made against disease in those days. Fraud and adulteration touched him to the quick, and he soon found out that the Madeira wine merchants were exporting on a grand scale though the vineyards there, destroyed by blight, no longer produced a single pipe of legitimate wine.

All efforts to help Wakley as a patient were futile, for he was impatient of any treatment or restraint. He lived through that winter, but succumbed in May, 1862, to copious hæmoptysis resulting from intense excitement. His body was sent for burial in England after an imperfect process of "embalming." It fell to me afterwards to introduce a strong solution of zinc chloride, which I injected into the femoral arteries, giving them a perfect preservative without evisceration when circumstances required. I sat with him during his last illness, but he was depressed and disappointed and spoke little.

In later years I saw much of the second Tom from time to time. He loved good music and had a piano in his office in the Strand. Moreover, he would occasionally come and sit with me in the organ-loft at St. Paul's Cathedral. In that memorable winter, 1861–62, the British community at Madeira was an interesting microcosm of diverse opinion. The ecclesiastic element was strong and twofold, one faction, noisy and aggressive, crushed us with an unmitigated mosaic cosmogony; the other required our passive acquiescence in whatever decision the Church might promulgate in all matters relating to creation and evolution. Some of us had read the "Vestiges," and my copy of the "Origin"—the first in these latitudes—was in great request; but it was the rash encounter of "Soapy Sam" with Prof. Huxley which really stimulated public interest in Charles Darwin, and led men to reflect that the cradle of every new science had always been encumbered with the corpses of extinct theologians. The focus of our party was the gifted Savilian Professor of Astronomy of those days, and we kept our views and studies to ourselves. Tom said nothing.

As time went on I became personally acquainted with the protagonists of progressive knowledge, and it fell to me eventually to touch copiously on these matters when addressing the Geological Society on behalf of the Royal College of Physicans of London, and I thoroughly enjoyed the sparkling interest of Lord Kelvin in records which for many years he had attempted to amalgamate with unbending Presbyterianism. Wilberforce never held up his head again, nor did Owen after the hippocampus minor fiasco; but the bishop's ever-ready wit charmed us all and went far to condone his subtle superficiality and questionable sincerity.

I could write volumes on the men and matter of those days, but I forbear.

Yours faithfully,

Madeira, Oct. 23rd, 1923. MICHAEL GRABHAM.

CENTENARY OF THE LANCET.

To the Editor of THE LANCET.

SIR,—THE LANCET celebrates its hundredth anniversary amidst a shower of congratulations and good will from the great medical community, in which I join from the other side of the Atlantic. It has been a century of untiring effort in the interests of science.

The reputation for impartiality justly conceded to consecutive editors encouraged beginners and unknown surgeons to bring the results of their labours into the daylight. Thus, by a farseeing discrimination, during a century, THE LANCET has saved valuable material from the scrap heap, and through its columns British surgery has reaped the reward.

THE LANCET has not only rescued much and many from unmerited obscurity, but it has broadcasted the work of great contributors for the benefit of all.

I am, Sir, yours faithfully,

W. I. DE C. WHEELER,

President, Royal College of Surgeons in Ireland.

Chicago, Oct. 20th, 1923.

To the Editor of THE LANCET.

SIR,—On behalf of my associates and myself I desire to have you extend to your editorial colleagues of THE LANCET our sincere good wishes and felicitations upon the completion of what we trust is only the first century of a noteworthy career of your honoured journal, a career certainly unmatched in the annals of medical journalism.

Fraternally and cordially yours,

GEO. W. KOSMAK, M.D.,

Editor of the *American Journal of Obstetrics and Gynecology.*

New York, Oct. 19th, 1923.

We have received the following cablegram from Kharkof, Russia, dated Oct. 26th:—

Journal, THE LANCET, *London*.

Our young journal, *Vratchebnoé Diélo*, sends congratulations to the honourable, old, but always in progress young, confrère on his Centenary, and, expressing deepest esteem, sends thanks from many Russian medical generations who got their education from the pages of THE LANCET.

(Signed) RÉDACTION.

INSULIN HYPOGLYCÆMIA.

To the Editor of THE LANCET.

SIR,—It is well known that insulin hypoglycæmia gives rise to symptoms both in experimental animals and in man. It is, I think, worth while recording the symptoms of an attack which I witnessed accidentally a short while ago and which was induced, without doubt, by insulin hypoglycæmia, because it is of the utmost importance that we should become familiar with the very varied manifestations of this condition. The symptoms exhibited by the patient, who is not under my care, were, I think, unusual. When first seen he was lying down out of doors on the grass, and as the day was fine and he had been taking moderately active exercise this did not seem peculiar. My attention was, however, attracted by the fact that he began shortly to throw his legs about in the air. On going up to him I found that he was sweating profusely, and was suffering from muscular spasms involving the face, trunk, and limbs. These were sufficiently violent to bend him double and to produce very marked contortion of the facial muscles. He was able to walk with assistance, but did so in a very wildly ataxic manner—the ataxia being apparently quite independent of the muscular spasms, which continually interrupted his progress. He was perfectly clear-headed, though naturally a little anxious. His pulse-rate was about 100; respiration did not appear affected except by the spasms. There was no real hyperpnœa or dyspnœa. He had with him four 5-gr. tablets of glucose, and had taken one of these before I saw him, the remainder were taken at once and were apparently quite without effect. In about 15 minutes from the beginning of the active symptoms we had arrived within reach of a sugar basin, and I gave him six lumps, one after the other. Within 10 minutes of taking them the attack ended, the patient expressed himself as feeling quite well and complained of being hungry. The cessation of the attack after the six lumps of sugar had been absorbed was most striking. So, too, the rapidity with which they appeared to act. The patient was taking large doses of insulin (60 units a day), 30 night and morning, and had once before experienced a similar attack but accompanied by loss of consciousness, which fortunately was prevented on this occasion.

I think this occurrence raises the question of the advisability of patients taking fairly active exercise after large doses of insulin, and most certainly illustrates the necessity for such patients to carry an adequate supply of carbohydrate with them in case of emergency.—I am, Sir, yours faithfully,

C. M. HINDS HOWELL.

Harley-street, W., Oct. 28th, 1923.

VICTOR HORSLEY LECTURE: THE LATE PROF. JOHN MARSHALL, F.R.S.

To the Editor of THE LANCET.

SIR,—I should like to think that there are many old University College men, besides myself, who have been pained by the cruel comments on Prof. Marshall made by Sir Edward Sharpey Schafer in his Victor Horsley Memorial Lecture.[1] In order duly to appraise Lister, was it necessary so wantonly to disparage Marshall? I attended the first three courses of Marshall's systematic lectures on surgery, and so informative and thought-awakening did I find them that I attended several lectures in two or three later courses. On the scientific side they were far ahead of any English surgical text-books at that time and for many years after. A more capable judge than I of the worth of Marshall's lectures was James Stanton Cluff, intellectually one of the most gifted men that ever entered the medical profession. He attended Marshall's lectures at the same time as myself. He took full notes in a cursive hand. These he afterwards carefully wrote out in elegant manuscript. After Cluff's premature and tragic death the notes became a prized possession of Marcus Beck's, and after Beck's death they were presented to the Library of the Royal College of Surgeons by Beck's intimate friend and colleague, Dr. Vivian Poore.

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[1] THE LANCET, Oct. 27th, 1923.

In my opinion Marshall was a cultured, critical and scientific surgeon, ever ready to try new paths and explore avenues of fresh knowledge. He had been Fullerian Professor of Physiology at the Royal Institution and subsequently was appointed Professor of Anatomy at the Royal Academy. He served with special distinction a long term of office in the Council of the Royal College of Surgeons and exactly 40 years ago was elected its President. Still later he was awarded the highest honour in the franchise of the profession—namely, the presidency of the General Medical Council, an honour necessarily reserved to a very few men of exceptional ability and character.

How are we to account for this puzzling disparity of opinion respecting a contemporary by intelligent contemporaries? Sir Edward Schafer incidentally throws a little light upon the question. He says that when he attended Marshall's lectures "most of his audience were soon fast asleep. I was one of the sleepers." One word more. Sir Edward Schafer observed, "there is an admirable bust of him (Marshall) at Lincoln's Inn Fields." It is an admirable bust, but it is a replica of that presented by myself to University College on behalf of the subscribers of the Marshall Memorial Fund, of which Victor Horsley was prime mover and honorary secretary.

I am, Sir, yours faithfully,
JOHN TWEEDY.

Oct. 27th, 1923.

VACCINES IN CHRONIC OSTEOMYELITIS.

To the Editor of THE LANCET.

SIR,—The annotation on this subject in your issue of Oct. 13th as exemplified by Prof. T. Rovsing, of Copenhagen, corroborates the record set forth below of a truly remarkable case. In recording it I would like to emphasise the vital necessity of adequate vaccine treatment in very chronic cases of osteomyelitis.

My patient, whom I saw at the request of Dr. Shepheard Walwyn, of Carlisle, had had, one might fairly say, the best medical and surgical advice obtainable. Notwithstanding, his infection recurred over a period of 38 years, beginning in 1884, the last abscess being opened in 1921. Originally an osteomyelitis of the right femur, definitely asserted to be non-tuberculous by so great an authority as Sir James Paget (and subsequently so confirmed), this was followed in 1887 by swelling of the right humerus, which recurred in 1889. This swelling recurred in 1903 and in 1905 it was opened by Sir Anthony Bowlby. Mr. Bailey had cause to reopen and scrape the humerus in 1907, 1908, and 1909. In 1913 Mr. Paul opened an abscess in the thigh. Cultures showed streptococci and staphylococci. A vaccine was used, but insufficiently in my opinion. In 1919–20 an abscess formed near the knee and was incised, also another in the groin. This last was in connexion with the pelvic bone. In 1921 another abscess formed near the insertion of the psoas muscle. A few doses of vaccine were given and the *arm* swelled up, but fortunately subsided. The patient was tested by cutaneous injection for tubercle by Sir Thomas Horder, with negative results. I examined some pus from a superficial abscess of the inguinal glands in September, 1921, and found *Staphylococcus aureus*, *S. albus*, and *Streptococcus pyogenes*. I made a vaccine, and the dose, at my suggestion, was slowly worked up until by January, 1923, at least 12 doses of 1000 million organisms had been given.

There has been so far no recurrence. The record gives rise to hope that success has been attained, but it is not yet certain that such is the case. Prof. Rovsing does not favour vaccines in acute osteomyelitis. On the other hand, the work of the Pasteur Institute and Prof. Grégoire, as recorded in your issue of Dec. 6th, 1919, showed that vaccines of the right type have a definite and valuable rôle in aborting early cases. The technique has been well worked out and should strictly be adhered to. To quote Prof. Grégoire's words, "The picture is so different in these cases that they present quite peculiar features and are so mild as to make us doubt as to whether we are not dealing with a new disease."

Nevertheless, we must retain our balance and in acute cases be prepared to revert to surgery if abortive efforts fail. Some cases fail to respond to the best vaccine in the world.—I am, Sir, yours faithfully,

A. GEOFFREY SHERA.

Eastbourne, Oct. 25th, 1923.

THE ALBUMINURIA OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—The extremely interesting article published by Dr. J. W. Russell in your issue of Oct. 27th, and other recent observations on the mechanical factors in orthostatic or postural albuminuria, tempt one to outline certain investigations which are being conducted along somewhat similar lines in connexion with the albuminuria of pregnancy. Although these latter are very far from complete, owing to a shortage of suitable cases and other unforeseen difficulties, it may be of value to compare notes with other observers even at this early stage. Thus one is already indebted to Dr. Russell for the particular method which he suggests in his paper; it is less direct than that which we have hitherto employed, but presents obvious advantages in cases where for one reason or another ureteric catheterisation is contra-indicated.

In reviewing the multitudinous data which have been collected with relation to the so-called toxæmias of pregnancy, one had been impressed with the apparent fact that albuminuria, although in a small minority of instances it may terminate in eclampsia, is *usually* unaccompanied by any other definite deviation whatever from the normal, with the possible exception of œdema. This applies alike to clinical and biochemical observations. It therefore seemed probable, in spite of the general rejection of the mechanical hypotheses which have been advanced by Paramore and others, that some simple explanation might account for the occurrence of uncomplicated albuminuria in pregnancy.

In cases of orthostatic albuminuria apparently due to lordosis, Sonne assumed that the two kidneys would not be equally involved, as the left renal vein would be more liable to compression by an anterior curvature of the spine, and indeed he was able to demonstrate by ureteric catheterisation left-sided unilateral albuminuria. Rieser postulated a compression of the left renal vein between the aorta and superior mesenteric artery in conditions of visceroptosis associated with lordosis. On these and other grounds it appeared not unlikely that a mechanical factor might determine the occurrence of albuminuria in certain cases of pregnancy and might be similarly demonstrated; consequently, with the coöperation of Mr. V. E. Lloyd, who has in each instance undertaken the actual catheterisation (by no means easy in advanced pregnancy), a small number of cases has been investigated along these lines. Our first observation, made in May last, showed a definitely positive result; urine from the left kidney was loaded with albumin, that from the right contained the merest trace. Further results have not been so satisfactory, although in several instances there has been very considerably more albumin on the left than on the right, and in no case has the position been reversed. We cannot therefore draw definite conclusions until our series is enlarged and other factors have been taken into account.

In expert hands ureteral catheterisation appears to occasion remarkably little inconvenience to the patient, and in view of the far-reaching importance of the subject we have considered it perfectly justifiable. At the same time one welcomes Dr. Russell's method of attacking the problem, as catheterisation is not always possible.

It is as easy to summon extraneous evidence to the support of a theory as it is to give scope to the imagination, and I will therefore resist the temptation to develop the thesis or to apply our entirely insufficient data to the pathology of eclampsia itself.

I am, Sir, yours faithfully,

FRANK COOK,
Beit Memorial Research Fellow.

Guy's Hospital, London, S.E., Oct. 29th, 1923.

"PRO LEPROSIS": INTERNATIONAL RELIEF WORK OF THE FRANCISCAN ORDER.

To the Editor of THE LANCET.

SIR,—The dermatological department of the University of Rome has just founded a philanthropic institution of the highest importance. It is the International Relief Work of the Franciscan Order to aid the missionaries who, voluntarily, devote themselves to the care of lepers abroad.

The work "Pro Leprosis" is an international work of charity and piety; it depends for its support upon the generosity of the rich, the small contributions of the less rich, and especially upon the science and sentiment of physicians who, more than anyone else, are in a position to appreciate the suffering due to the frightful infection of leprosy, and the service of missionaries, sisters of charity, and others who risk their lives in order to care for and treat their unfortunate brothers suffering with leprosy.

The physicians who desire to identify themselves with the international committee of the "Pro Leprosis" relief work are requested kindly to send their names to me, and to offer their opinions and suggestions as to the best manner to diffuse knowledge of this worthy cause in Great Britain and the United States of America, and to keep the work alive by conferences, articles in the press, university committees, ladies clubs, societies, &c. The editors of medical and scientific journals and writers for such publications, especially those on the subject of leprosy, are urgently requested to send gratis copies of such journals and articles to: Opera "Pro Leprosis" (Sezione Tecnico-Scientifica), Convento Sant' Antonio, Via Merulana 124, Roma, Italy. Contributions should be addressed to: Rev. P. Cipriano Silvestri, O.F.M., Direttore dell' Opera Francescana, "Pro Leprosis," Collegio Sant' Antonio, 124, Via Merulana, Rome, Italy, or direct to me at Via Cesare Battisti 133, Roma (1).—I am, Sir, yours faithfully,

Oct. 25th, 1923. Prof. VINCENZO D'AMATO.

LICE AND CRIME.

To the Editor of THE LANCET.

SIR,—I venture to endorse in every particular Mr. Theodore Dodd's conclusions, given in your issue of Oct. 13th, as to the grave nature of the lice menace. The council of the Incorporated Vermin Repression Society is fully alive to the part played by vermin, including body vermin, in the causation of disease and economic loss, but the subject is not one that enlists the sympathies of any but a few enthusiastic workers. Fortunately we have been able to obtain the sympathetic consideration of the Ministry of Health in regard to our attitude to lice in casual wards. The Ministry, replying (XII. 155416/23 date Sept. 25th, 1923), assures us that our representations respecting the proposed Casual Poor (Relief) Order, 1923, will be carefully considered by the Minister.

I am, Sir, yours faithfully,

ALFRED E. MOORE,
Hon. Director.

44, Bedford-row, London, W.C., Oct. 28th, 1923.

THE PEOPLE'S LEAGUE OF HEALTH.

To the Editor of THE LANCET.

SIR,—Remembering the generous response to the appeal on behalf of the sufferers in Japan, I now wish, on the eve of my retirement from office as Lord Mayor, to enlist the financial support of the public for the Endowment Fund of the People's League of Health, of which the King is patron.

The purpose of the League, which was founded in 1917 by Miss Olga Nethersole, is to multiply and supplement the sources of public information and education to such an extent that no mother shall lose her child through ignorance; that no man or woman shall be stricken with disease for lack of knowledge.

Recognising the national work that the League has undertaken in the interests of the people through the Trades Union General Council, the National Union of Teachers, and the Prisons and Borstal Institutions of the country, and as honorary treasurer to the Endowment Fund of the People's League of Health—to which the King has graciously contributed £100—I earnestly hope that the community will give a cordial response to this appeal which, as an official member of the League, it is my privilege to make.

Cheques can be sent to the Lord Mayor at the Mansion House and crossed "People's League of Health Endowment Fund."

I am, Sir, yours faithfully,

EDWARD C. MOORE,
Lord Mayor.

The Mansion House, London, E.C. 4, Oct. 25th, 1923.

Obituary.

GEORGE DARELL MAYNARD, O.B.E., F.R.C.S. EDIN., M.R.C.S. ENG.

THE death is reported from Johannesburg, Transvaal, of Dr. G. D. Maynard, who succumbed to cerebrospinal fever on Sept. 18th, at the age of 47. Dr. Maynard received his medical education at St. Mary's Hospital, qualifying in 1898, and later at Geneva and Paris. In 1901 he became F.R.C.S. Edin., and in 1904 travelled to South Africa, where he practised at first in the Cape Province and later became a railway medical officer in the Transvaal. At this period his interest lay especially in public health administration, and he became successively M.O.H. to the Pretoria Suburbs Health Committee and assistant medical officer to the Witwatersrand Native Labour Association, and later statistician to the South African Institute for Medical Research. After the war, in which he served as Lieut.-Colonel in the S.A.M.C. and D.A.D.M.S. to the Expeditionary Force in East Africa, Dr. Maynard took up consulting practice in cardiology, was placed on the staff of the Johannesburg General Hospital as honorary visiting physician, and resumed the editorship of the *Medical Journal of South Africa*, a post which he had previously held. He also held the position of medical adviser to the Statistical Department of the Government of the Union of South Africa. Dr. Maynard was one of the outstanding figures in South African medicine, and had gained his statistical equipment in a good school. His untimely death will cause regret in this country as well as in South Africa.

JORDAN ROCHE LYNCH, M.R.C.S. ENG.

WE regret to announce the death of Jordan Roche Lynch, who died recently from pneumonia at his residence in Barnes at the age of 80. He was the son of Dr. Jordan Roche Lynch, who practised in Farringdon-street, London, and who, in spite of his early death, was recognised as a pioneer of public health in the City of London.

Jordan Roche Lynch was educated at the Bluecoat School, and entered St. Mary's Hospital, Paddington, as a student in 1859, and qualified in 1864, thus making the fourth generation of his family to practise medicine. Shortly after he became resident medical officer to Dr. Sibson, for whom he had a lifelong regard, and afterwards was resident medical officer to the Lock Hospital. Leaving hospital work he went into practice at Notting Hill, where he remained for 50 years, retiring as recently as 1917. He was keenly interested in the welfare of his profession, and served on the medical committee of St. Mary's Hospital and also on the medical school committee of that hospital for 13 years, from 1878 to 1891. He was also for 27 years on the council of the Medical Defence Union. As a member of the council of the Royal Medical Benevolent Fund and other charitable organisations for many years he showed a practical interest in the medical charities. His experience of the happenings in the pre-Listerian days and his stories of his old hospital days were always of interest to the younger generations of the profession, who scarcely credit the changes which have occurred in the practice of medicine and surgery. His knowledge of the back history of medical professional work was directly derived from his father, who was one of the early collaborators in the production of THE LANCET under the Founder.

The late Dr. Jordan Roche Lynch married Marian, daughter of Mr. James Oliver, who survives him, and by whom he had five children, all of whom are living, one of the sons being Dr. G. Roche Lynch, pathological chemist at St. Mary's Hospital.

RICHARD JOSEPH TRISTAN, L.R.C.P. & S. EDIN.

BY the death of Dr. R. J. Tristan, on Oct. 25th, Retford loses a well-respected member of the medical profession. Dr. Tristan qualified in 1886, and held the post of resident midwifery assistant at Coombe Hospital, Dublin, before settling in private practice. He went to Retford nearly 40 years ago as assistant to the late Dr. William Pritchard, and his kindness and geniality brought him wide popularity. Dr. Tristan was a pupil and friend of the late Dr. Joseph Bell and Sir Henry Littlejohn, and many were the stories he delighted to tell of these men. He was a vigorous supporter of the National Service League, and took a keen interest in all matters military, having in his youth served in the Sherwood Yeomanry Cavalry and other corps. During the war he was the medical recruiting officer for Retford and district. He was a well-known member of several Caledonian societies. For many years he was a member of the medical staff of the Retford Hospital and Dispensary, and on his retirement from active work there he was made honorary consulting physician.

OWING to the prevalence of chicken-pox this year in Manchester, the Public Health Committee is asking for power from the city council to make the disease compulsorily notifiable for a period of six months, beginning in January next.

Dr. J. B. Mennell, of St. Thomas's Hospital, London, on Oct. 22nd opened a new massage department of the Royal Infirmary, Manchester, and expressed the hope that the honorary medical staff would coöperate in the use of the department, which would materially increase the efficiency of the institution.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—The golf competition in aid of this Guild, which was open to any woman member of a recognised golf club returning the best aggregate of five selected cards against bogey (not necessarily on the same course) between Jan. 1st and Sept. 30th, 1923, resulted in a tie between Miss W. Doxford (Bromley and Bickley), L.G.U. handicap 7, and Mrs. Wright (Stanmore), L.G.U. handicap 20, with an aggregate of 29 holes up on bogey. Ties being decided on the greatest number of holes won from bogey on the five cards, Miss Doxford wins the silver rose-bowl presented by Sir Hugh Rigby, and Mrs. Wright the prize for competitors with handicaps over 18. The Guild benefits to the extent of over £135, and the committee hope to run a competition on similar lines next year.

THE MEDICAL INSURANCE AGENCY.

A MEETING of the Committee of Management of the Medical Insurance Agency was held at the house of the British Medical Association on Thursday, Oct. 25th, when, in the absence of Dr. G. E. Haslip owing to indisposition, the chair was taken by Dr. H. A. des Voeux. Other members present were Dr. E. Weaver Adams, Lieut.-Colonel R. H. Elliot, Dr. R. A. Gibbons, Dr. R. Langdon-Down, Sir Dawson Williams, Sir Squire Sprigge, and Mr. W. E. Warne. The secretary presented the audited balance-sheet for the year 1922, together with the chairman's report thereon. A very interesting detailed schedule showed the great and rapid progress made by the Medical Insurance Agency during the last eight years. The premium income increased from £12,104 in 1915 to £37,936 in 1922, whilst the commissions, &c., earned rose from £1950 in 1915 to £5250 in 1922. For the third year in succession policies totalling over £100,000 in sums assured in respect of life and endowment assurance were arranged through the medium of the agency, bringing the total sums assured up to Dec. 31st, 1922, under these heads to over £700,000. Business in fire and accident insurances has increased; the convenience of paying one premium for all household risks under a flat rate is apparently much appreciated. An interim report by the chairman for the nine months ended Sept. 30th, 1923, stated that the popularity of this comprehensive household contract continued. In spite of a decline in life assurance business experienced by all offices, and in spite of the existence of keen competition, the agency negotiated 62 new life policies during the period. One of the advantages—and not the least—of the Medical Insurance Agency is that members of the profession can obtain from it personal advice as to the particular kind of policy to meet the individual's particular needs. During the annual meeting at Portsmouth no fewer than 55 interviews took place, and it was found possible to adjust several delicate matters to the satisfaction of the applicant.

The amount of business in insuring motor-cars done by the Agency increased during the year, but bearing in mind the large number of cars now used by members of the profession it is believed that the amount could be further increased. Motor-car insurance is a specialised business; accidents are more heavy and frequent than in almost any other form of insurance, and members of the profession would be well advised to take advantage of the security offered them to obtain fair and equitable settlements by insuring through an agency so strong and influential as the Medical Insurance Agency. The committee has for some time felt that the benefits already conferred upon the profession might be increased were it in a position to obtain for the person insuring through it advice on all matters affecting the purchase and use of motor-cars. An arrangements has now been made with the firm of Mann, Egerton, and Co., Ltd., to advise members free of charge, either directly or through the medium of the Agency, on any problems, difficulties, disputes, or technical matters relating to motor-cars, including motor coach-work and accessories; to give advice as to the suitability of any particular car for any class of work or type of district; to undertake the periodical inspection of members' cars at a moderate fee; to give expert advice as to the mechanical condition of members' cars, and the advisability of repairs, and to prepare specifications and estimates for repairs to mechanism or coach-work, or for the manufacture of special bodies to meet particular requirements, and generally to place their entire resources at the disposal of members, both in London and throughout the country. The firm has been established over 25 years; it possesses experience, a staff of experts and large works at Ipswich, Norwich, and in London (156, New Bond-street, and 1a, High-road, Kilburn). The firm will place at the disposal of purchasers of cars, through the Medical Insurance Agency, their system of deferred payment; a purchaser pays 25 per cent. of the value on delivery and the balance by monthly or quarterly instalments as desired. An addition of 2½ per cent to the list price of the car is made to cover interest charges. The company has a stand (No. 129) in the coach building annexe of the Olympia Show, and its representatives will be prepared to give advice free of charge to medical men intending to purchase on the advice of the Medical Insurance Agency. Application for an introduction should be made to the Secretary of the Agency, 429, Strand, London, W.C. 2.

It appeared from the balance-sheet of the Medical Insurance Agency for the year 1922 that a sum of over £2000 had been returned by way of rebates to those insured through the Agency, an increase of £367 over 1921. The surplus carried to the Medical Benevolent Fund was slightly larger in 1922 than in the preceding year, and a sum of £1500 was allotted as follows: to the Royal Medical Benevolent Fund Guild, £630; to the Royal Medical Benevolent Fund, £315; to the Epsom College Benevolent Fund, £210; to the Royal Hospital and Home for Incurables, Putney, £52 10*s.*; THE LANCET Editor's Discretionary Fund for dealing with emergency cases, £25. A further sum of £267 10*s.* was set aside for the fund established by the Agency to make grants in aid of the education of girls, orphans of medical men, or daughters of unfortunate brethren who are precluded by age or ill-health from continuing to practise. Including the contributions now made the total sum subscribed to medical charities by the Medical Insurance Agency since 1910 exceeds £11,500.

THE RECENT SMALL-POX OUTBREAK IN LONDON.

The report of the Public Health Committee of the London County Council on the recent small-pox outbreak in London makes interesting reading. It appears that altogether there were 18 cases—two terminating fatally—of which 11 occurred in the County of London and 7 in extra-metropolitan districts. Attention was first directed to the appearance of small-pox in London on Sept. 7th, the patient being a girl employed as a chambermaid at a central London hotel. During the course of her duties at the hotel she had waited upon a lady visitor from Spain, who, in the absence of medical advice, was thought to be suffering from influenza, with spots attributed by her to fish poisoning. This woman left the hotel on August 19th and efforts were immediately made to trace her movements and destination. Before she was ultimately discovered on Sept. 10th at an address in an out-county suburb, two cases presented themselves which apparently were the result of contact with her. One patient was employed in the vicinity of the hotel where she had stayed and the other was actually employed at the hotel. When finally she was located, the local medical officer of health, on visiting the address, discovered an adult relative suffering from a severe attack of small-pox, and ascertained that the lady herself was out shopping in the West End of London. On her return she was found to be recovering from a mild attack of small-pox. On the same day another case was discovered in London, the patient being a relative who had been in contact with her. During the later period of her convalescence, before she was removed to hospital on Sept. 10th, this lady was visiting, shopping, &c.

Ten further cases afterwards occurred. Three apparently had no connexion with the original source of infection, but four were presumed to have been infected by the man who worked in the vicinity of the lady's hotel. Of the remaining three, one was a man employed by a laundry firm in washing soiled linen from the hotel, and the other two were adults who had occupied at different times the room at the hotel in London previously occupied by the Spanish visitor. The Public Health Committee of the Council conclude: "The medical officers of health in the various local areas had the assistance of the Council's experts in diagnosis, Dr. W. McConnel Wanklyn and Dr. J. A. H. Brincker, and took prompt measures to arrest spread of the disease, including the vaccination and observation of contacts. Vaccinations and revaccinations by public vaccinators of school-children in the schools directly or indirectly connected with the outbreak have also been carried out through the medium of the Council's divisional medical officers acting in coöperation with the board of guardians. Only one child of school age (an unvaccinated boy of 12 years) contracted the disease. As a result of the energetic measures taken the outbreak of small-pox in London was localised." Of the 18 cases which occurred, 12 patients whose ages ranged between 23 and 79 years had not been vaccinated since infancy, and of these 1 died; 5 between the ages of 12 and 50 years were unvaccinated, and of these 1 died. One patient had been vaccinated in the army in 1914, and suffered a very mild attack.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on Oct. 25th, the chair being taken by Sir Humphry D. Rolleston, the President. It was reported by the Censors' Board that Mr. George Dawson Stilwell had been appointed Jenks scholar. The following candidates were admitted to the Membership of the College: Drs. C. K. J. Hamilton, D. Hunter, D. G. Leys, W. T. Nelson, D. Nicholson, E. O. A. Singer, and K. H. Tallerman. Licences to practise physic was granted to 168 candidates (including 33 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates:—

W. L. Ackerman, London; J. C. Ainsworth-Davis, Cambridge and St. Bart.'s; R. H. Amm, Cape Town and Guy's; R. S. Anderson, St. Bart.'s; F. G. A. Armson, Birmingham; I. Atkin, St. Bart.'s; W. Balendra, Ceylon and London; Rose Baranov, Univ. Coll.; P. E. Bardsley, Cambridge and St. Thomas's; J. S. Benzecry, Univ. Coll.; E. M. Bergheim, Middlesex; Dora M. Berry, Royal Free; E. J. Blackaby, St. Bart.'s; Margery G. Blackie, Royal Free; L. G. Blair, Edinburgh and London; W. L. Blakemore, Birmingham; D. R. Blunn, London; A. J. Boase, St. Thomas's; Hilda A. Bond, Univ. Coll.; E. G. Bradbeer, Bristol; R. T. Brain, London; A. Broido, Guy's; C. O. S. B. Brooke, St. Bart.'s; Georgie G. Brown, Aberdeen and Charing Cross; J. W. Brown, Middlesex; Mary Buck, Royal Free; B. H. Burns, Cambridge and St. George's; Lily C. Butler and Kathleen F. Butterfield, Royal Free; F. B. Byrom, London; C. M. Carruthers, Kingston and London; H. K. Christie, Otago; D. H. Cockell, St. Bart.'s; M. Cohen, Birmingham; B. A. Coles, Cardiff and Westminster; A. B. Cooper, St. Bart.'s; R. Cove-Smith, Cambridge and King's Coll.; I. S. Cristol, Leeds; G. J. Crosby, Cambridge and Univ. Coll.; D. T. Davies, Cardiff; I. G. Davies, Cardiff and St. Bart.'s; T. D. Deighton, St. Bart.'s; Margaret B. M. Dewhurst, St. Mary's; D. Diamond, St. Bart.'s; V. W. Dix, Cambridge and London; A. F. Doyle, St. Thomas's; Doris L. Durie, Univ. Coll.; Hilda R. Dutton, Bristol; N. L. B. V. Eckhoff, Cape and Guy's; L. C. J. Edwards, Melbourne and London; P. Ellman, Manchester; G. S. W. Evans, St. Bart.'s; W. M. Evans, Univ. Coll.; J. L. Farquharson and S. Farquharson, St. Thomas's; R. B. Fawkes, Cambridge and Guy's; H. G. Goldwater, Cambridge and Middlesex; T. S. Goodwin, Cambridge and St. Bart.'s; F. M. Gore, Birmingham; L. J. Green, Westminster; J. V. Griffiths, Cambridge and Durham; P. D. Griffiths and C. J. P. Grosvenor, Cambridge and St. Bart.'s; C. C. Halliwell, Cambridge and St. Thomas's; A. Harbour, St. George's; H. E. Harris, St. Bart.'s; Doris I. Harston, Royal Free and London; G. T. Henderson, Cambridge and Guy's; K. W. Heritage, London; G. Hochschild, Cape and St. Thomas's; Frances A. Hogben, Manchester; E. Holmes, Leeds; J. W. Hope-Simpson, Cambridge and St. Thomas's; Madge W. Hubble, King's Coll.; D. F. Hutchinson, Cardiff and St. Thomas's; L. I. Hyder, King's Coll.; C. Iszatt, London; C. Ive, Guy's; E. C. James, Cardiff; A. H. Johns, Cambridge and St. Bart.'s; C. E. Keast, Guy's; Karin L. E. Kellgren, Royal Free; G. B. Kirkland, Guy's; C. de Winton Kitcat and R. A. E. Klaber, St. Bart.'s; E. H. Koerner, Oxford and Guy's; P. E. M. Lanier, Middlesex; Miriam A. Lawson, Royal Free; J. J. Lewinstein, Guy's; R. H. Little, St. Thomas's; A. A. Lucas, Madras and Edinburgh; A. R. Macdonald and G. B. McMichael, St. Bart.'s; Margaret D. Mason, London; G. B. Matthews, Charing Cross; G. A. Metcalfe, Cambridge and St. Thomas's; H. D. N. Miller, Cambridge and King's Coll.; G. O. Mitchell and P. M. Moffatt, Guy's; C. I. N. Morgan, Cardiff and St. Bart.'s; O. G. Morris, Guy's; N. Moulson, St. Bart.'s; Jeannette F. L. Murray, Cape and St. Mary's; F. W. G. Nash, Middlesex; F. N. Newell-Roberts, Guy's; M. F. Nicholls, Cambridge and St. George's; J. R. Nicholson-Lailey, Bristol; Muriel L. M. Northcote, Royal Free; P. H. O'Donovan and R. J. Oliver, London; Mary E. Ormsby, Royal Free; Jean Orr-Ewing, Oxford and St. Mary's; Amy M. Parkinson, Charing Cross; J. Parrish, St. Bart.'s; T. W. Preston, King's Coll.; C. A. Probert, Guy's; R. J. V. Pulvertaft, Cambridge and St. Thomas's; P. G. D. Quinet, Birmingham; K. Rai, Lahore and Middlesex; W. A. Rankin, Edinburgh and Westminster; J. O. M. Rees and R. D. Reid, St. Bart.'s; W. L. Roberts, Cambridge and Univ. Coll.; H. A. Robertson, Oxford and King's Coll.; N. L. D. Robertson, King's Coll.; Sybil H. G. Robinson, London; T. Robson, Cardiff and St. Thomas's; D. J. Rose, St. Bart.'s; Marjorie Rushbrooke, Birmingham; Z. Salama, Cairo and Birmingham; F. H. Scotson, Manchester; J. M. Scott, St. Bart.'s; H. M. Shelley, Sheffield; A. E. Sherwell, Bristol; Mary M. Sillito, Royal Free; Lucy C. Simpson, St. Mary's; A. J. D. Smith, St. Bart.'s; N. R. Smith, St. Thomas's; L. V. Snowman, Cambridge and St. Mary's; A. C. Sommerville, King's Coll.; M. Stieber, Westminster; R. M. L. Still, Guy's; F. O. T. Strange, King's Coll.; E. R. S. Sweeney, Bombay and St. Mary's; Annie Sydenham, Royal Free; F. C. M. Taylor, Charing Cross; H. Taylor, Bristol; R. C. Taylor, Univ. Coll.; L. M. Teuten, Cambridge and St. Mary's; B. M. Toop, London; A. Turner, St. Mary's; H. F. Turney, Oxford and St. Thomas's;

Helen R. Turover, Charing Cross; F. C. O. Valentine and S. Vatcher, Cambridge and London; D. Vaughan, Guy's; Kathleen C. Vost, St. Mary's; R. G. R. West, St. Bart.'s; R. Whillis, Cambridge and Univ. Coll.; R. W. White, London; A. G. E. Wilcock, Cambridge and St. George's; Doris Williams, Westminster; E. L. Williams, London; Elsie J. Williams and Esther Wingate, Royal Free; J. Wolstencroft, Liverpool; T. Wooldridge, Guy's; and H. Yates, Cambridge and St. Thomas's.

Mr. A. C. Clauson, K.C., was appointed Senior Standing Counsel, vice Sir Thomas J. C. Tomlin, K.C., appointed Judge in the High Court of Justice. Dr. J. A. Nixon was appointed a representative on the Court of the University of Bristol, vice Dr. Newton Pitt, resigned. Dr. Arthur J. Hall was appointed a representative on the Court of the University of Sheffield, vice Sir Humphry Rolleston, resigned. The Senior Censor moved, and it was resolved: 1. That the licence of the College, which was withdrawn from Reginald Nitch Smith in 1918, be now restored to him. 2. That the licence of the College, which was withdrawn from David Arnold Chaning Pearce in January last, be now restored to him.

The President announced that he had appointed Sir Archibald Garrod to deliver the Harveian oration in 1924. The alterations in the by-laws relating to the examinations for the licence, as passed at last Comitia, were passed for the second time. Temporary by-laws were passed allowing David Waters Sutherland and John Cyril Holditch Leicester, being resident in India, to be admitted to the Fellowship in absentia any by-law to the contrary notwithstanding. Mr. Horace Barlow was appointed to the office of Bedell rendered vacant by the death of Mr. William Fleming. The following report was received from the Committee of Management and the recommendations made in it were adopted—

1. That a note be inserted at the end of Clause II., Chapter II., of the Regulations for the Diplomas of L.R.C.P. and M.R.C.S. to the effect that, "the course in General Biology required by Clause VII. 2 may be taken concurrently with the study for the Pre-Medical Examination, in cases where such study is taken at a recognised Medical School and Hospital."

2. That the Higher Certificate Examination of the Central Welsh Board be added to the list of Examinations in which the subjects of Chemistry and Physics may be accepted under the conditions of Clause 2, Section II., of the Regulations for the Preliminary Examination and for the Pre-Medical Examination.

3. That the Matriculation Examination of the University of Queensland be added to the list of Examinations recognised for the Preliminary Examination in General Education.

The Committee reported to the Colleges the retirement by rotation from the Committee, under the conditions of Para. VI., Part I., of the scheme for constituting the Examining Board in England, of Dr. J. A. Ormerod and Mr. H. J. Waring.—Dr. J. A. Ormerod was reappointed a member of the Committee of Management. After the reports of some Committees had been received and other formal College business transacted, the President dissolved the Comitia.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—R. S. Chambers, Guy's Hosp.; G. Israelstam, London Hosp.; T. J. Liengme, Lausanne; and D. Parsons, Charing Cross Hosp.

Medicine.—E. N. C. Annis, Guy's Hosp.; R. Caplan, Glasgow; R. S. Chambers, Guy's Hosp.; D. Dimitrijevitch, Oxford and St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; G. A. Lord, Manchester; T. J. Liengme, Lausanne; M. A. E. Somers, Bristol; A. J. Vickery, St. Mary's Hosp.

Forensic Medicine.—E. N. C. Annis and R. S. Chambers, Guy's Hosp.; D. Dimitrijevitch, Oxford and St. Mary's Hosp.; C. J. Fox, St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; W. M. Jones, St. Bart.'s Hosp.; Y. N. Lal, Dundee; T. J. Liengme, Lausanne; G. A. Lord, Manchester; and W. R. H. Pooler, St. Mary's Hosp. and Cambridge.

Midwifery.—H. J. Adams, Middlesex Hosp.; H. P. Burns, St. Mary's Hosp.; H. T. Chiswell, Guy's Hosp.; A. J. M. Davies, St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; and T. J. Liengme, Lausanne.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: E. N. C. Annis, R. S. Chambers, T. J. Liengme, G. A. Lord, and W. R. H. Pooler.

MATERNITY CASES IN POOR-LAW INFIRMARIES.—The Finance Committee of the Manchester Corporation has approved and forwarded to the city council a proposal that the corporation should subsidise beds in the paying wards of the Poor-law institutions for maternity cases arising in families "lying socially between the Poor-law level and the well-to-do." The charge is three guineas a week, and the patients are expected to contribute about 50 per cent. of that sum. The exact amount to be so contributed, however, is to be considered independently by a subcommittee. The net estimated cost of six beds is calculated at £200, towards which the Ministry would contribute half; the Minister of Health has intimated that he will look with favour on the proposal, and will treat the expenditure as entitled to the 50 per cent. Government grant. Thus the net cost to the corporation will be small.

WELLCOME BUREAU OF SCIENTIFIC RESEARCH.—On the occasion of Dr. Andrew Balfour's retirement from the directorship a representative gathering of the staff was held at the Bureau on Oct. 29th to bid farewell to him and his deputy, Colonel G. E. F. Stammers, who is also retiring. On behalf of the staff Dr. C. M. Wenyon expressed the admiration and esteem which they all felt for their retiring Director-in-Chief and his deputy, and thereafter, as a token of regard, made a presentation to each of them. Dr. Balfour and Colonel Stammers, in thanking Dr. Wenyon and the staff, expressed a hope for the future prosperity of the Bureau.

A NEW HOSPITAL AT SHIRAZ.—A wealthy Persian merchant, Haji Mohammed Hussan Namazi, has presented to Shiraz a maternity hospital, the conduct of which he has asked the Church Missionary Society to undertake. Medical work at Shiraz was only opened in February of this year by the C.M.S., the work being undertaken at the invitation of the Indo-European Telegraph Department of the India Office, and this new department will mean increased responsibilities in an important centre with a population of 60,000 people. Dr. Emmeline Stuart, of Dublin, who went out last February to share the work at Shiraz, will be responsible for the hospital, together with Miss E. A. Thomas, and is at present at Yezd.

THE American College of Surgeons, on Oct. 26th, conferred its Honorary Fellowship on Sir William Ireland de Courcy Wheeler, M.D., F.R.C.S.I., President of the Royal College of Surgeons, Ireland, and on Mr. A. E. Webb-Johnson, C.B.E., D.S.O., F.R.C.S., Honorary Surgeon to the Middlesex Hospital, and Dean of its Medical School. Mr. Webb-Johnson is visiting the United States in response to an invitation to deliver an address at the Special Congress of the American College of Surgeons held at Chicago.

BIRMINGHAM AND MIDLAND EDINBURGH GRADUATES' CLUB.—The nineteenth annual dinner of the club was held on Oct. 25th at the Queen's Hotel, Birmingham, with the President, Dr. J. R. Ratcliffe, in the chair. Prof. Arthur Robinson was the guest of the evening and replied to the toast of the University in a speech in which, after giving delightful reminiscences of his own student life, he described the Edinburgh school as it is to-day, and indicated its probable development in the future.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner of past and present students will be held at the Savoy Hotel, Strand, on Dec. 6th.

ROYAL DENTAL HOSPITAL OF LONDON.—The dinner of the past and present students will be held at the Trocadero Restaurant (Empire Rooms), London, W., on Nov. 24th, at 7 P.M. Mr. S. Northcroft will preside.

ST. THOMAS'S HOSPITAL: OLD STUDENTS' DINNER. The old students' dinner was held on Oct. 26th, at Prince's Restaurant, Piccadilly, when some 220 St. Thomas's men and their guests assembled under the chairmanship of Mr. W. H. Battle, consulting surgeon to the hospital. Among those present were Sir Arthur Stanley (treasurer), Sir Cuthbert Wallace (Dean of the Medical School and senior surgeon), Dr. C. R. Box (senior physician), Mr. G. Q. Roberts (secretary), Sir Charles Scott Sherrington, F.R.S., Surgeon Vice-Admiral J. Chambers (Director-General, Navy Medical Department), Lieut.-General Sir William B. Leishman (Director-General Army Medical Department), Air Force Commodore D. Munro, Sir George H. Makins, Brig.-General Sir William Horwood, Sir Havelock Charles, Lord Riddell, Sir F. Stanley Hewett, Mr. J. B. Lawford, Sir Hector Mackenzie, Sir Archibald Reid, Sir Seymour Sharkey, Dr. H. G. Turney, Mr. Percy Sargent, Prof. H. MacLean, Dr. G. A. Maling, V.C., Dr. Ingleby Oddie, Sir Squire Sprigge, Dr. N. G. Horner, Sir James Roberts, Dr. Seymour Taylor, and Lieut.-Colonel I. Boulger.

At the express desire of the chairman the speeches were few and brief, Mr. Battle setting the example by simply welcoming the company and stating that the treasurer of the hospital and the Dean of the Medical School would report upon the several and joint activities of the institution. Sir Arthur Stanley's reply showed the good reason that the old students of St. Thomas's have for knowing that the hospital is in a satisfactory and progressive state. Admitting lean times in the near past, he assured his hearers that acute financial troubles had been satisfactorily met, while a valuable move forward could be reported in that the hospital had been able to acquire suitable land and bank up enough money for the erection of a residential hostel. At least £3000 more, he thought, would be required, but the position justified an immediate start. Sir Cuthbert Wallace stated the position of the school, mentioning by name also the recipients of honours during the year and the school prizemen. He showed also that the school stood generally well in athletics, though for the moment the only challenge cup held by the hospital was the nurses' tennis cup. In respect of London medical education, he called attention to the fact that for the first time there had been a conference of all the licensing bodies to deliberate questions affecting their curricula, and he hoped that this would assist to a mutual recognition of each other's tests. In reference to the relation of the University of London to the constituent medical schools, he spoke of the necessity that the schools, if they were to play their best part in a coöperation scheme, should be left largely independent in their own houses. Sir Cuthbert Wallace concluded by welcoming the guests and proposing the toast of Mr. Battle's health, to which the chairman replied.

Leeds School of Medicine.—The fortieth annual dinner of the past and present men students of the school will be held at the Queen's Hotel, Leeds, on Nov. 16th, at 7 P.M., when Mr. Carlton Oldfield will preside. Tickets (10*s.* each) may be obtained from the hon. secretaries, Mr. A. M. Claye and Mr. W. E. Dornan, at the Medical School, Leeds.

A **lecture** on the Treatment of Rhino-Laryngological Tuberculosis in Finsen Light Institute, Copenhagen, with a note of results obtained, will be delivered by Prof. Strandberg, of Copenhagen, on Monday, Dec. 3rd, at 5.30 P.M., at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W.

Rontgen Society.—A general meeting will be held on Nov. 6th, at 8.15 P.M., in the Institution of Electrical Engineers, Savoy-place, Victoria Embankment, London, W.C., when the presidential address will be delivered by Sir Oliver J. Lodge, F.R.S., on X Rays and the Atom.

Departmental Committee on Preservatives and Colouring Matters in Food.—The Minister of Health has appointed Mr. P. A. Ellis Richards, F.I.C., President of the Society of Public Analysts, to be a member of the above Committee in the place of Mr. Otto Hehner, F.I.C., who has resigned from the Committee, having to return to South Africa.

People's League of Health.—A series of eight lectures are being delivered at the headquarters of the National Union of Teachers, Hamilton House, Mabledon-place, London, W.C., under the general heading of the Mind and What We Ought to Know About It. The first lecture was given by Dr. Bernard Hart on Oct. 31st on Primitive Instinct, and will be followed by further lectures at 6 P.M. every Wednesday until Dec. 19th, on which day Dr. A. F. Tredgold will speak on Mental Deficiency. Others taking part in the course are Dr. R. H. Cole (Nov. 7th), Dr. R. S. Rows (14th), Sir Maurice Craig (21st), Sir Robert Armstrong Jones (28th), Sir Frederick Mott, F.R.S. (Dec. 5th), and Dr. W. A. Potts (12th). Tickets can be obtained from the Secretary, N.U.T., and from Miss Olga Nethersole, 12, Stratford-place, London, W. 1.

A series of four lectures will be given at the Royal Society of Arts on Monday, Nov. 5th, and following Mondays, at 6 P.M., by Sir Henry Gauvain and Dr. C. W. Saleeby. The title of the series is Sunlight and Health. Tickets, 5*s.* for the course, or 1*s.* 6*d.* a single lecture, may be obtained from Miss Olga Nethersole, as above, or from the Secretary, Royal Society of Arts, John-street, Adelphi, W.C.2.

Fellowship of Medicine and Post-Graduate Medical Association.—A series of courses will be given during November in general and special subjects. From Nov. 5th to 17th a short course in general medicine and surgery will be given at the Royal Northern Hospital, with which will be associated the Central London Ophthalmic Hospital, the North-Eastern Fever Hospital, and the Royal Chest Hospital. The course will include demonstrations in the various departments from 10.30 A.M. each day. There will be a course in gynæcology at the Chelsea Hospital for Women from Nov. 5th to 30th at which lectures by members of the staff supplemented by demonstrations in the out-patient department and operations in the theatre will be given each day. Also from Nov. 5th to 30th the Maudsley Hospital have arranged a course of lectures and clinical demonstrations on some aspect of psychological medicine. The lectures will take place each afternoon. A course of lectures and clinical demonstrations in venereal diseases will be given in the wards and out-patient departments at the London Lock Hospitals from Nov. 5th to 29th, and from Nov. 12th to Dec. 6th, a series of 5 o'clock lectures on Gastro-intestinal, Respiratory, Genito-urinary and Skin Diseases of Children will be given at the Children's Clinic, Western General Dispensary. A practical course in ophthalmology will be given at the Royal Westminster Ophthalmic Hospital from Nov. 19th to Dec. 15th. There will be clinical instruction every afternoon from 2 P.M., and in addition a practical fundus class and special demonstrations in medical ophthalmology and methods of examination three times a week at 10 A.M. Further particulars and copies of the syllabus of any of the foregoing courses will be forwarded on application to the secretary to the Fellowship of Medicine, at 1, Wimpole-street, W. 1. The next fortnight's course in general medicine and surgery will be held from Dec. 3rd to 15th at the Hampstead General Hospital in association with the Hospital for Epilepsy and Paralysis, the North-Western Fever Hospital, and the Paddington Green Children's Hospital, of which further particulars will be given later.

Messrs. William Heinemann (Medical Books), Ltd., announce the forthcoming publication of "Psycho-Analysts Analysed," by Dr. P. McBride, with an introduction by Sir Bryan Donkin, and of the "Medical Year Book, 1924," which will be ready in November.

London Hospital.—The Catherine Gladstone Home at Mitcham has been brought up to date and redecorated by the "Marie Celeste" Samaritan Society, who will maintain and manage it as an annexe of the London Hospital. The opening ceremony will be performed by the Minister of Health at 3 P.M. on Nov. 19th, when the premises and the new ambulance which the committee has had specially built for the use of "annexe" patients of the London Hospital will be open to inspection.

Medical Women's Federation.—The Council of the Federation held its autumn meeting at Birmingham on Oct. 19th and 20th, in a room in the Medical Institute lent for the occasion. Lady Barrett, President of the Federation, was in the chair. The hon. treasurer announced that 164 new members had joined during the year and that the membership of the Federation now stood at well over 800. Arising out of the minutes of the last meeting was the report that inequality of payment of men and women medical officers at the Post Office still continued, and also that owing to protests made on this account by the Federation and the B.M.A. further appointments of medical women had been made without previous advertisement in the medical papers. It was resolved to write to the Postmaster-General calling his attention to the fact that this was contrary to the public interest, and it was further decided to take steps to impress upon newly qualified practitioners the importance of the principle of "equal pay for equal work" as applied to medical men and women. Among the business before the Council were the reports of the various subcommittees. The report of the subcommittee on venereal disease dealt with the traffic in women and children and with the Trevethin Report. It stated also that there was undoubted need of more medical women in the work of combating venereal disease, but that there was scarcity at present of medical women possessing special qualifications for this work. Several cases of underpayment were considered and dealt with. The question of the rate of payment of assistants in general practice came up for discussion in connexion with a letter from a young practitioner who had found herself obliged to accept an assistantship at very low remuneration, and who asked why the B.M.A. fixed what seemed a very high minimum for public health posts and had apparently fixed none at all for the post of assistants in general practice. It was pointed out that the value of the latter posts lay largely in the experience they afforded or in the prospects they offered, while junior public health posts were not infrequently "blind alleys." The general opinion was that young women practitioners would be wise to apply for posts of assistants to general practitioners more frequently than they did, and that these posts would be useful as a preliminary to public health work as well as to general practice. The opinion was also expressed that there was a considerable demand for women in general practice, and that many openings were still to be found unappropriated throughout the country.

The visit of the council members to Birmingham was not wholly devoted to business meetings, as a committee of the Birmingham and District Medical Women's Association—the local branch of the Federation—had provided a varied programme. On Oct. 18th a dinner was held at the Midland Hotel, at which 100 medical women and women medical students were present. Short speeches were given by Dr. Rose Molloy, who presided, Lady Barrett, Miss Frances Ivens, Dr. Mary Sturge, and Dr. Mabel Ramsay. Dr. Ramsay, who is the representative of the Federation on the B.M.A. Insurance Acts Committee and had taken an active part that day in the important meeting held in London, explained the reasons for the decisions there arrived at, and urged all women panel practitioners to support the policy adopted by the B.M.A. and to send in their resignations when demanded. She considered the conflict was between the medical profession and the approved societies, not between the profession and the Government. It was due to the determination of the approved societies to obtain greater control of the panel doctors, and this, if it came about, would be detrimental both to doctors and patients.

On the evening of Oct. 19th a reception was held at which guests of both sexes, including many prominent medical men and their wives, were present. A play written for the occasion, a skit on dreams and psycho-analysis, was acted, and gave much amusement. On the 20th visits were paid to the children's hospital and to the Carnegie welfare centre.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

Thursday, Nov. 8th.—4.30 p.m.

Papers to be read : A. S. Parkes : Studies on the Sex-ratio and Related Phenomena ; Fœtal Retrogression in Mice. (Communicated by Dr. F. H. A. Marshall.) R. A. Fisher : The Influence of Rainfall on the Yield of Wheat. (Communicated by Sir John Russell.)

Paper to be read in Title only : D. Thursby-Pelham : The Placentation of Hyrax Capensis. (Communicated by Prof. J. S. Gardiner.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 6th.

ORTHOPÆDICS : at 5.30 p.m. (Cases at 5 p.m.)

Cases :

Mr. Laming Evans : Congenital Dislocation of Head of Radius.

Other cases will be shown.

PATHOLOGY : at 8.30 p.m., *at the Laboratory of the Imperial Cancer Research Fund, Queen-square, W.C. 1.*

Communications :

Dr. G. M. Findlay : Histopathology of Manganese Intoxication.

Dr. W. Cramer : Pathological Lesions of Tryptophane Deficiency.

Dr. J. A. Murray : Further Observations on Multiple Primary Cancer.

Demonstrations :

Mr. A. M. Begg : Mucor Granuloma of the Mouse.

Mr. A. H. Drew : Activation of Growth of Adult Tissues in Vitro.

Wednesday, Nov. 7th.

SURGERY : at 5.30 p.m.

Presidential Address :

Mr. Cyril A. R. Nitch : Cystic Pneumatosis of the Intestinal Tract.

Thursday, Nov. 8th.

NEUROLOGY : at 8.30 p.m.

Paper :

Dr. W. J. Adie : Pyknolepsy, a Form of Epilepsy in Children with a Good Prognosis.

Friday, Nov. 9th.

CLINICAL : at 5.30 p.m. (Cases at 5 p.m.)

Cases will be shown.

OPHTHALMOLOGY : at 8.30 p.m. (Cases at 8 p.m.)

Papers :

Mr. Valentine : A Pair of Diving Spectacles.

Mr. Lindsay Rea : A Preliminary Report on the Treatment of Interstitial Keratitis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.

Tuesday, Nov. 6th.—5 p.m., FitzPatrick Lecture : Dr. C. J. Singer : The History of Anatomy.

Thursday.—5 p.m., Second Part of FitzPatrick Lecture.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Thursday, Nov. 8th.—5 p.m., The Bradshaw Lecture : Mr. Walter G. Spencer : Melanosis (Melanin, Melanoma, Melanotic Cancer).

UNIVERSITY OF LONDON ADVANCED LECTURES IN SURGERY.

Thursday, Nov. 8th.—(At Guy's Hospital Medical School.) 5.30 p.m., Prof. E. W. Hey Groves : The Treatment of Injuries of the Long Bones produced by Accident or Disease.

Friday.—5.30 p.m., Second Lecture.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Nov. 5th.—10 a.m., Mr. Maingot : Surgical Pathology. 12 noon, Mr. Simmonds : Applied Anatomy. 2.30 p.m., Mr. Addison : Surgical Wards.

Tuesday.—10.30 a.m., Dr. Paterson : Medical Wards. 12 noon, Dr. Burrell : Chest Cases. 2 p.m., Mr. Sinclair : Surgical Out-patients.

Wednesday.—10 a.m., Dr. Saunders : Medical Diseases of Children. 12.15 p.m., Dr. Burnford : Medical Pathology. 2.30 p.m., Mr. Armour : Surgical Wards.

Thursday.—12 noon, Mr. Simmonds : Demonstration of Fractures. 2 p.m., Mr. MacDonald : Genito-Urinary Dept. 2 p.m., Mr. Bishop Harman : Eye Dept.

Friday.—10 a.m., Dr. Drummond Robinson : Gynæcological Operations. 12 noon, Mr. Endean : Venereal Diseases. 2 p.m., Mr. Banks-Davis : Throat, Nose, and Ear Dept.

Saturday.—9.30 a.m., Dr. Burnford : Bacterial Therapy Dept. 10 a.m., Dr. Saunders : Medical Diseases of Children. 10 a.m., Mr. Banks-Davis : Operations on Throat, Nose, and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Nov. 6th.—5 p.m., Dr. S. E. Dore : Psoriasis.

Thursday.—5 p.m., Dr. M. G. Hannay : Erythemata.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE : October–November, 1923.

Clinical Lectures and Demonstrations.

Monday, Nov. 5th.—2 p.m., Out-patient Clinic : Dr. Hinds Howell. 3.30 p.m., Epilepsy : Dr. Aldren Turner.

Tuesday, Nov. 6th.—2 p.m., Out-patient Clinic : Dr. Grainger Stewart. 3.30 p.m., Disorders of Sensation and their Significance : Dr. Hinds Howell.

Thursday, Nov. 8th.—2 p.m., Out-patient Clinic : Dr. Kinnier Wilson. 3.30 p.m., Pituitary Disorders : Dr. Grainger Stewart.

Friday, Nov. 9th.—2 p.m., Out-patient Clinic : Dr. Gordon Holmes. 3.30 p.m., Surgery of Cerebral Tumours : Mr. Sargent.

Course of Lectures and Demonstrations on Neuro-Pathology.

Monday, Nov. 5th.—12 noon, Pathology of the Neuron, I. : Dr. Godwin Greenfield.

A Course of Lectures on the Anatomy and Physiology of the Nervous System commenced on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s*. The fee for the Anatomy and Physiology Lectures is £3 3*s*. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7*s*. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. Hinds Howell, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Nov. 8th.—4 p.m., Mr. Fairbank : The Treatment of Spastic Paralysis.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

Wednesday, Nov. 7th.—4 p.m., Dr. W. A. Bullough : Problems of Health Service in Rural Districts.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Thursday, Nov. 8th.—6 p.m., Second Lecture, Dr. R. H. Cole : Sensation, Perception, Ideation, and Attention.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Nov. 6th.—4.15 p.m., Dr. F. H. Westmacott : Chronic Catarrh of the Upper Air Passages.

Friday.—4.15 p.m., Dr. T. H. Oliver : Physiology and Pathology of Diabetes Mellitus.

ANCOATS HOSPITAL.

(Special Course on Surgical Tuberculosis.)

Thursday, Nov. 8th.—4.30 p.m., Mr. H. Platt : Tuberculosis of the Bone.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.

(At 3.30 p.m. each day.)

Monday, Nov. 5th.—(At the Children's Hospital.) Dr. Murray Bligh.

Tuesday.—(At the Southern Hospital.) Mr. Armour : Injuries and Diseases in the Neighbourhood of the Hip.

Wednesday.—(At the Northern Hospital.) Dr. Pemberton and Dr. Cunningham : Renal Inadequacy Methods of Determination.

Thursday.—(At the Stanley Hospital.) Mr. F. S. H. Heaney : The Chronic Abdomen.

Friday.—(At the Royal Infirmary.) Dr. Roberts : Modern Radiology.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

Wednesday, Nov. 7th.—(At Swindon), Dr. R. A. Rendle Short : Diagnosis and Treatment of Common Gastric Disorders.

Nov. 9th.—(At Boscombe), Dr. A. L. Flemming : Difficulties in Anæsthesia.

Appointments.

Bayley, E., M.D. Lond., F.R.C.S. Eng., has been appointed Medical Officer to the Eastern Telegraph Company.

Davies, W. L. G., Chief School Medical Officer for Carmarthenshire.

Sowden, G., M.D. Brux., D.P.H., Barrister-at-Law, Medical Officer of Health for the Metropolitan Borough of St. Pancras.

King's College Hospital : Roberts, O. W., M.B., B.S., Senior Casualty Officer ; Connan, P., M.R.C.S., L.R.C.P. Lond., Second Casualty Officer ; Cave, E. H. P., M.R.C.S., L.R.C.P. Lond., House Anæsthetist ; Osborn, H. A., B.M., B.Ch., Resident Assistant Clinical Pathologist ; Sheldon, W. P. H., M.R.C.S., L.R.C.P. Lond., and Livingstone, J. L., M.B., B.S., House Physicians ; Snell, N. W., M.R.C.S., L.R.C.P. Lond., House Physician and Surgeon to Ophthalmic Department ; Kohnstam, G. L., M.R.C.S., L.R.C.P. Lond., Acheson, P. M., M.R.C.S., L.R.C.P. Lond., and Brockington, F., M.R.C.S., L.R.C.P. Lond., House Surgeons ; Edwards, H. C., M.R.C.S., L.R.C.P. Lond., House Surgeon to the Urological Dept. and Asst. House Anæsthetist; Collins, F. M., M.R.C.S., L.R.C.P. Lond., House Surgeon to Orthopædic Dept. and Third Casualty Officer; Saunders, R. M., M.B., Ch.B., Obstetric House Surgeon; Nicholson-Smith, E. M., M.R.C.S., L.R.C.P. Lond., House Surgeon to Aural and Throat Depts.

Vacancies.

For further information refer to the advertisement columns.

Barrow-in-Furness, North Lonsdale Hospital.—H.S. £225.

Bath Royal United Hospital.—Asst. H.S. £150.

Benenden, Kent, National Sanatorium.—Res. Asst. M.O. £275.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £120 respectively.

Bolton Education Committee.—Ophth. S. 3 guineas per session.

Bristol General Hospital.—Hon. Asst. S.

Bristol Royal Infirmary.—Hon. Asst. Dental S.

British Honduras.—Asst. M.O. $2430.

Charing Cross Hospital Medical School.—Chemist to Bio-chemical Dept. £500.

Dundee Royal Infirmary.—Hon. Asst. Vist. Phys.

Eastbourne, Princess Alice Memorial Hospital.—Hon. Ophth S.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., Obstet. Asst., and Two H.S.'s. Each £50.

Fulham Parish Infirmary, St. Dunstan's-road, Hammersmith, W.—Third Asst. M.O. £250.

Great Yarmouth Hospital.—H.S. £150.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Dentist.

Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.

Islington Dispensary, 303, *Upper-street, N.*—Sen. and Asst. R.M.O.'s. £300 and £220 respectively.

Leamington Spa, Warneford, &c., General Hospital.—R.H.S. £150.

Leeds Public Dispensary.—Sen. Res. M.O. £200. Hon. Radiol. and Hon. Dent. Surg.

London Jewish Hospital, Stepney Green, E.—Res. M.O. and Jun. Res. M.O. £150 and £100 respectively.

Lowestoft, St. Luke's Hospital.—Jun. Asst. M.O. £500.

Manchester City.—M.O. £620 19*s.* 9*d.*

Manchester, Monsall Fever Hospital.—Jun. Med. Asst. £405 6*s.*

Margate, Princess Mary's Hospital for Children, Cliftonville.—Jun. Asst. M.O. £500.

Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £275.

Portsmouth Royal Hospital.—H.S. £150.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. £80.

Royal Northern Hospital, Holloway, N.—Res. M.O. £250. Cas. O. £125. Also Two H.S.'s. Each £75.

St. Mary's Hospital for Women and Children, Plaistow, E.—Asst. Res. M.O. £130.

St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.

Salisbury Municipality, Rhodesia.—M.O.H. £600.

Sanitary Inspectors' Examination Board.—Examiners.

Sheffield Royal Infirmary.—Ophth. H.S. £100.

West London Hospital, Hammersmith-road, W.—Hon. Asst. S. to Throat, Nose and Ear Dept.

Willesden Municipal Hospital for Infectious Diseases, Brentfield-road, Neasden, N.W.—R.M.O. £367 12*s.*

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Lyme Regis, Dorset.

Births, Marriages, and Deaths.

BIRTHS.

Fernandez.—On Oct. 26th, at a nursing home, to Christine (née Mayo), wife of T. Fernandez, M.R.C.S., L.R.C.P., M.A. Cantab., of 79, Sutton Court-road, Chiswick, W. 4, the gift of a son.

Fry.—On Oct. 25th, to Dr. Gladys Miall-Smith, of Welwyn Garden City, the wife of Dr. H. J. B. Fry—a son.

Gordon.—On Oct. 21st, at Largo House, Largo, the wife of Captain S. Gordon, I.M.S., of a daughter (stillborn).

MARRIAGES.

Kerr-Pringle—Hunt.—On Oct. 24th, at Cople, Bedfordshire, George Loraine Kerr-Pringle, M.C., M.D. Edin., to Dorothy Isabel, only daughter of the late Alfred Foster Gradon, Indian Woods and Forests, and widow of Seward Hunt, of Alta Gracia, Rep. Argentina.

Norris—Rathouse.—On Oct. 26th, at Poplar, D. C. Norris, M.B., B.S., F.R.C.S., &c., late Senior Resident Officer, Poplar Hospital for Accidents, to Hélène Rathouse, M.D. Paris and Geneva, L.S.A. London.

DEATHS.

Gostling.—On Oct. 25th, at Sunnyside, Winchester-road, Worthing, Thomas Preston Gostling, M.R.C.S., L.R.C.P., L.S.A., O.B.E.

Lane Notter.—On Oct. 24th, at a nursing home in Southampton, Colonel James Lane Notter, late A.M.S., aged 80.

Tristan.—On Oct. 25th, at Retford, Richard Joseph Tristan, L.R.C.S., L.R.C.P. Edin., of Retford.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE ROYAL ARMY MEDICAL CORPS AND ITS WORK.

The Inaugural Address delivered before the Royal Medical Society, Edinburgh,

By Sir William Leishman, K.C.M.G.,

DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

Sir William Leishman said that he would not talk about the work of the R.A.M.C. in war-time as many of his audience had had considerable experience of that. He divided his address into three parts, beginning with a short account of the stages of service and of the environment and atmosphere of the work, going on to tell of its nature and varieties, and concluding with some of the results obtained.

The Pilgrim's Progress.

In the first part, the speaker said, he had to describe a sort of Pilgrim's Progress. Lieut. "Christian," having passed his examination, was sent to the Army Medical College, where, in addition to the pleasures of comradeship and community of interest which mess life gives, he enjoyed the great advantage of meeting older officers, travelled and experienced both in war and in sport. Here his knowledge was supplemented with the kind of information especially required for military work. Having completed this course, Lieut. "Christian" passes out to the R.A.M.C. depôt, where he is instructed in drill, riding, field work, and similar matters of a military and executive nature. It is at the depôt that he first comes in touch with the men of the Corps. After this he is posted for service and comes into association with other branches of the service. He begins with home service; then comes his foreign service, the attractions of which are many, bringing with it the delights of travel, of widened interests, of intimate friendships and opportunities for sport and games which home life cannot give. He experiences the delight of leave on full pay and free from all anxiety as to the effect on his practice—a thing the struggling young civil practitioner dare not dream about for years. If he goes sick he is treated most generously by the Corps. After seven and a half years' service Captain "Christian," as he now is (he attains that rank, all being well, after three years' service), comes home for his senior course. If he pass the subsequent examination above a certain standard, he is given the opportunity to specialise in any one of certain subjects. In the average case there follows for a period of years alternate home and foreign service, and, after some 20 to 25 years of service, Lieut. "Christian" reaches the exalted rank of Lieut.-Colonel. After that promotion is by selection.

Specialisation in the R.A.M.C.

Going on to speak of the work of the R.A.M.C., Sir William Leishman said that, in spite of popular belief, it was no easier than civil work. Just as much knowledge was required, and more. What they wanted was a really good general practitioner, efficiently trained and self-reliant. The Corps offered a wide field of specialisation in almost every branch of medicine, including pathology, hygiene, general medicine and surgery, dermatology, venereal disease, ophthalmology, radiology, and even midwifery, gynæcology, and pediatrics, for soldiers were sometimes married and had children. The conditions were admirable. They dealt with subjects of high physical efficiency, and it was possible to have a man's complete medical history from the day he joined to when he was discharged. In addition to ordinary medical work and war training, there was work such as recruiting, offering an interesting field to anyone keen on vital standards, anthropology, and kindred subjects; physical training with its associated problems of fatigue, diet, &c.; and sanitation, which, especially abroad, gives great opportunities for epidemiological and kindred work.

The Value of Prophylactic Treatment in Enteric Fever.

Speaking of results, Sir William Leishman said that he would not give a series of statistics. He would content himself in that direction by mentioning the fact that in the Boer War there were more deaths from enteric fever than there were cases of it in the late war. This he attributed in large part to the use of the prophylactic T.A.B. vaccine introduced by Sir Almroth Wright. The army was really the birthplace of hygiene, and Parkes was its father. In connexion with pathology and bacteriology, he mentioned the work of Wright, Harrison, Harvey, Cummins, and others. Lewis, Bruce, and Simpson, among many others, had contributed greatly to our knowledge of tropical diseases. In medicine and surgery the names were too numerous to mention. Every branch of the two subjects could be and was being studied.

Sir William Leishman concluded by speaking of the new and flourishing army dental department and of the ambitious task it had undertaken of examining every tooth in the army. It would, he said, be interesting to see what effect this had on the incidence of those diseases in which caries and pyorrhœa alveolaris are supposed to be important ætiological factors.

STIMULANTS OF GROWTH.

At the first social evening of the session, on Oct. 30th, Prof. Gowland Hopkins, F.R.S., Cambridge, delivered an address on this subject to the Royal Society of Medicine. Of all the attributes of life in whatever form, growth, he said, was the most characteristic, but the question of growth had so many aspects that he was compelled to confine his remarks to only one of these—namely, is growth a process that goes on spontaneously, or does it need a stimulus, just as a muscle or nerve cell needs a stimulus to make it perform its function? The whole animal body was under the influence of stimuli, and growth of the body was controlled by the action of the internal secretions. He showed some interesting lantern slides to illustrate the rôle played by the pituitary body in controlling development. But the conditions governing growth of the body were too complex to illustrate the phenomena he wished to consider, therefore it was necessary to deal with observations made on unicellular organisms. In protozoa the function of growth dominated all other functions, yet the distinction between the growth of these organisms and that of complex animal tissues was mainly superficial—one characteristic of both was that when the individual cell reached a certain size it divided. What was the nature of the substances which caused the cell to grow and divide? It was found that artificial parthogenesis always required a stimulus of some sort. What was this stimulus? Was it something which wakened the dormant activity of the growth processes, having a "trigger action," or was it "building material"? The smaller the amount of the material required, the more likely was it to be a stimulant. There were other substances, too, which acted as catalysts, whose presence was necessary to the continuation of growth.

In considering the growth of bacteria, the lecturer said that the more saprophytic or parasitic the organism the more stimulus was required for multiplication, but the amount of the substance necessary to growth was so infinitesimal that, in his opinion, it could not be building material, but must be a stimulant. What was this substance? If you isolated a single protozoon and transferred it to a medium of too large a bulk it would not grow. Starting with one individual, the number of cells by fission would be inversely proportional to the amount of medium. Were two cells put into the same amount of medium, the number produced by fission would be 20 times greater than in the first case, when you started with one cell. These proved facts seemed to support the theory that the cell-nucleus, on dividing, poured a growth-catalyst into the culture-medium; the less medium, the greater the concentration of the catalyst, hence the more abundant the growth. Turning to the animal body, Prof. Hopkins pointed out that though the adult animal as a whole had ceased to grow, the cells of its tissues transferred to a suitable medium did not cease to grow, and here, he said, we were touching on the great problem of cancer. It was extremely unfair, he added, to say that nothing had been done in this country in the investigation of cancer. The effect of vitamins on growth was that of a stimulus, for experiments showed that the addition of the minutest quantity (1 mg. or less per day) to the food of vitamin-deprived rats produced a remarkable and immediate growth. Finally, he pointed out, although the pituitary gland was a tissue highly specialised for the general control of growth, any living cell of itself could supply stimulants for growth. When cells were living in community, one cell could stimulate the other to some extent.

In moving a vote of thanks, Prof. E. H. Starling paid a tribute to Prof. Hopkins's power of finding among the thickets of ignorance which surround us some path to knowledge which others had passed by unheedingly, and instanced his recognition of vitamins in growth as a case in point. He expressed his gratitude to the lecturer, not so much for what he had given, but for the keen sense he aroused of something that was about to come. Previously to the address, Sir William Hale-White, the President, presented the Society's gold medal to Prof. Hopkins.

A WORCESTERSHIRE HOME FOR MENTAL DEFECTIVES.

The sixth annual report of the Besford Court Catholic Mental Welfare Hospital for Children discusses the general problem of the treatment of the mentally defective child and shows a full appreciation of the requirements for its solution. Conventional training in the "three R's" is regarded as unimportant, except for reading, the main objects being to educate such powers as the child possesses and to eliminate that emotional instability which makes the high-grade moron an expense to the community when he reaches adult life. The economy axe has made a dead letter of the 1914 Act, which should compel local authorities to provide suitable education for defective children, and the report points out the futility of training these children in ordinary schools. The Besford Hospital is certified by the Board of Education, the Board of Control, and the Home Office, and receives grants from various authorities, a fourth part of the expenses being derived from special appeals. There is no accommodation for girls, and it is not found possible to accept the lower grades of mental defectives; only those are admitted who can reasonably be expected to be made at least partly self-supporting in adult life. With these unavoidable limitations the institution carries out a work of public benefit, and the modern and enlightened methods indicated in the report should add to our knowledge of how to handle these difficult cases.

A DIRECTORY OF PRACTISING MIDWIVES AND MATERNITY NURSES.

A classified directory has been issued by the Scientific Press, Ltd., for the convenience of the medical profession and the public. It is divided into the following sections: (1) Certified midwives practising alone; (2) certified midwives practising with doctors; (3) maternity nurses. In regard to sections (1) and (3), it is emphasised that under the Midwives Act it is a punishable offence for any woman not certified under the Act to attend another woman in labour "habitually and for gain" except under the direction of a registered medical practitioner. Each section is arranged under the headings London and County Suburbs, Provincial, Wales, Scotland, Ireland, and Channel Islands, and the names are given in alphabetical order with addresses.

EXEMPTIONS TO SOUTH AFRICAN TAX ON PATENT MEDICINES.

A notice in the South African Union *Gazette* of Oct. 5th states that for the purposes of the Customs and Excise Duties Amendment Act of 1923 the term "patent or proprietary medicines" shall not be deemed to include "the under-mentioned household remedies, whether sold under a particular trade mark or labelled with a recommendation or not," namely "arnica, camphorated oil, carbolic oil, carbolic ointment, castor oil, cod-liver oil, dill water, embrocation, Epsom salts, eucalyptus oil, glycerine, Gregory's powder, gripe water, Hoffman's anodyne, ipecacuanha wine, liquorice powder, malt extract, malt extract and cod-liver oil, medicinal paraffin, quinine—ammoniated tincture of, soothing powders, teething powders, zinc ointment."

A BOOK OF REFERENCE.

The Annual Charities Register and Digest. 1922 (London: Longmans, Green & Co., pp. 554, 7*s.* 6*d.*).—This year-book, now in its thirty-second edition, is so well known that mention of its contents is becoming superfluous. The volume opens with the customary review of the finances of the charitable institutions of London and its neighbourhood, and contains the usual detailed and up-to-date sections devoted to relief in affliction, sickness, and distress and to reformatory relief, obtainable in or about the capital. The miscellaneous section includes information on social and physical improvement, employment, emigration, and protection of human and animal life and of the helpless, and appended chapters deal with benevolent institutions, trade and friendly societies, registry offices, savings banks, and employment exchanges.

"THE WORLD'S CHILDREN."

An interesting feature of the first number of the fourth volume of this quarterly publication (published at 30, Mortimer-street, London, W. 1, 1*s.*) is a symposium by educationists on "Next Steps in Education," which gives a number of representative views as to the paths into which educational progress should be directed at the present time. The activities of the Save the Children Fund are set out in detail. There is a delightful article by Sir Robert Baden-Powell on Climbing as Education—he suggests an obstacle track of indoor and outdoor furniture such as chairs, boxes, wheel-barrows, garden seats for children of three, leading on to tree, rock, and mountain climbing for older children. The educational value of a child's natural instinct for climbing is enormous, for besides developing muscle climbing stimulates the association areas of the brain and teaches self-control and nice calculation. Major Leonard Darwin's article on a Child's Rights is more controversial. While not disputing the right of a child to a good home, he argues that the alternatives of complete removal from an unusually bad home and of supplementing home supplies generally results in an increased output from the bad or indifferent home with more suffering for future generations.

Some Ideas
ON
OUR SUCCESSORS.

The Presidential Address to the Sheffield Medico-Chirurgical Society, delivered on Oct. 11th, 1923,

BY A. E. NAISH, M.B. CAMB., F.R.C.P. LOND.,
LECTURER ON MEDICINE, UNIVERSITY OF SHEFFIELD;
PHYSICIAN, SHEFFIELD ROYAL HOSPITAL.

FOR a moment let us take a bird's-eye view of the hanges which have taken place during the medical fe of some of us. Much has been said lately in the aily papers and elsewhere of the specialisation that taking place to-day and the dangers that it brings its train. Quite as remarkable and significant to y mind is the tendency to unification. When I was student chemistry was chemistry and physics hysics in very much the same way as the East nd West of Kipling's famous song, but now the henomena of adsorption, surface-tension, colloidal ates, ionisation, &c., have come in to break down e barrier, and the modern worker in most branches chemistry finds himself more and more dependent physical laws and formulæ. In my student days e subjects of electricity and light did not seem to ave much to do with one another, but now we nceive ourselves to be surrounded by a medium ther) in which vibrations with every gradation of ave-length are taking place, and we for the most art are quite unconscious of their presence, although dowed with one sense-organ capable of responding a few of these vibrations if they come within a tiny nge of wave-length. Electricity, X rays, wireless, ght, &c., we believe to be of essentially the same ature. I need not point out the close connexion etween electricity and chemistry. The ordinary emical battery and the phenomenon of electrolating let us have an inkling of this long ago, and e modern theory of the atom bids fair to make both ne. Thus physics may be said to be widening out nd swallowing up what were previously separate iences. I think there is a special significance to us human investigators in this unification of all henomena. Perhaps I can put my point of view est by means of an analogy from the history of ligion. When human beings believe in a large umber of separate gods, it is not long before they egin to regard each one with some condescension, be bargained with, tricked, petted, and cajoled. ith the advent of monotheism, the grandeur of the bject of veneration tends to give man a proper sense f humility. The greater the unification, the larger nd more unexceptional the generalisations, the more an stands in his proper relation as servant to truth.

CHANGES IN OUR VIEWS OF DISEASE.

Turning to more immediately medical subjects, lo we see there any sign of this process of unification? f one were asked what is the most significant change hich has taken place in our time I think the answer ight be that it is not this or that discovery in acteriology, this or that improvement in surgical kill, this or that new arsenical product or internal land product or vaccine, but the change which is aking place in our views of disease. In the old days e regarded everything in the light of the anatomical hange which it produced in an organ. We labelled ur disease: cirrhosis of the liver, valvular disease f the heart, granular kidney, and as long as we knew he microscopical appearances thoroughly were content hat we knew all about it. I remember that when, me ten years ago, auricular fibrillation was first sed as a diagnostic term, many would ask, "What is s morbid anatomy?" and when the answer was It has none," would turn away with a pitying smile nd not trouble to inquire any further.

If one wants to find out about the habits and mode f life of primitive man there are two methods which can be employed. One is to examine the skulls and other bones that have been left after the ravages of time, any flints or other instruments that have been found in the same geological strata, any habitations or methods of burial of which traces have been left, and from these to construct the story. The second, and better, method is to find a primitive tribe still living, to go and live among its people and to become initiated if possible into all their customs and mysteries, such as has been done by Spencer and Gillen among the aborigines of Australia. This may be called the physiological method in contradistinction to the other or anatomical method. In our student days physiology was a science applicable to the healthy body; as soon as disease supervened one's curiosity was supposed to be satisfied by anatomy. It was, furthermore, a science based almost wholly on animal experiment.

How it Works.

To-day our curiosity is thoroughly aroused on the subject of how disease *works;* we want to take the lid off and see the changes occurring. Furthermore, a large and increasing amount of physiological research is being done on the human body and even on the diseased human body. For determining the rate of the circulation we used to be dependent on deductions from animal experiment. Now more than one method is available for determining it directly from the human subject. We have the means of studying its variations from the normal in various diseases and determining how far the ill-effects are due to such variations. Such estimations are, of course, an essential preliminary to rational therapeutics.

Discoveries about the wonderful properties of the blood for the extremely rapid capture and release of oxygen and CO_2 at each end of the circulation, and the extraordinary mechanism for the provision of sufficient oxygen to the muscles over a wide range of need have been made largely through observations on the living human subject. The same may be said about our present knowledge of the constancy of the blood alkalinity reaction, so exact that a change too small to be detected by our most delicate tests is enough to cause a very obvious alteration in the rate of breathing.

Direct investigation on human beings is only in its infancy, yet we are already beginning to have a much clearer idea of disease processes. For instance, we are beginning to get a conception of the blood delicately balanced, in a state of unstable equilibrium, poised like an acrobat on a tight rope, pushed and pulled by a hundred different forces, swaying first a little to this side and then to that, but retaining a remarkable degree of stability. In disease we can register some of its dangerous swayings, and watch its return to equilibrium. As the "Devil on two sticks" was able to take off the roofs of the houses and see what was going on inside, so our successors will have a clear view of the complicated processes of health and disease. Some cynic or other will say that these successors of ours will no longer be men but machines. Already there is said to be an instrument which will register almost automatically the percentage of gases in the alveolar air, and foolproof sets for the testing of blood-sugar are advertised. Will not the patient of the future enter a kind of Chicago sausage factory, be whirled from one test to another, and be presented at the end with a set of graphs or even one composite graph representing his bill of health, and a table of instructions which will bring him back to, or keep him in, the narrow path of physiological righteousness? Nay, will he not, for the good of the community, be forced willy-nilly to undergo the machines every three or four years? The arch cynic might even suggest that as we have ceased to eliminate the unfit in other ways, the machines might be a very good substitute. Ribald persons are even now heard to suggest that the extraordinarily good surgical statistics at some clinics are due to the preliminary weeding by the tests.

Does not the mind falter and hesitate to go forward to such mechanical triumphs ? Should not we rather shoulder our illnesses than be slaves to such a mechanistic life ? Samuel Butler in his " Erewhon " pictured a people so much afraid of becoming slaves to their own machines that they abolished them by law, and it was a penal offence even to carry a watch. This is the eternal struggle. Look through history and you will see man constantly devising systems for the economy of time and effort, and constantly becoming entangled in his own rigid creations till some strong thinker or poet comes to release him. The way by which medicine will escape from the dominance of mechanics will perchance be through the altered emphasis that will be put on mental as compared to physical ailments.

The Fetish of the Healthy Body.

At the present time civilised man hardly seems to view in their right perspective the unhappy results of bad bodily and bad mental health. The healthy body has been made a fetish. The daily papers acclaim and exaggerate every slight advance in therapeutics, and paint horrible pictures of disease. They lead people on to think of their livers and hearts and kidneys, and to seek salvation through the extirpation of physical disease. We see the results in a hundred ways. The only son who has been examined again and again for tuberculosis, whose vests are too thick, and who has been stuffed with cod-liver oil and cream. The small " prep." school with its fussy head and matron, where the anxious parents send their supposed delicate boy. The tame doctor to minister to the needs of one family or even one person. The man with the slightly stiff knee surrounded by his clientèle of specialists, nurses, and masseurs. After all, this strong longing for health has been a natural thing in the world hitherto. When small-pox, typhus, cholera, plague, tuberculosis were great mysterious scourges, no wonder that a man wished above all things to have a healthy body.

Now, when one comes to think in broad outline one is struck by the fact that the greater part of human misery is mental, and that the part that bodily ill health plays in its production is over-emphasised. Physical pain and disability are not to be compared in their devastating effects to the mental plagues from which so many in a modern community suffer. So greatly does the unfortunate neurotic dread his mental disturbances that he will court physical pain and disease in an effort to escape from them. We live in a world of men and women potentially capable of far greater things than they actually accomplish, but hampered by the inharmonious or undeveloped working of their central nervous system. We all know the man who, perhaps possessed of fine intellectual qualities, is yet a burden to himself and an ever-widening circle of acquaintances, because he has never learnt to harmonise his conflicting instincts.

THE POWER WITHIN THE BRAIN.

I picture to myself the man of the future seeing far more clearly than we do the terrible waste involved when even one brain fails to realise its potentialities, and demanding of the parson, the doctor, and the schoolmaster that they shall mobilise their forces for the solution of the problem how to realise the best of which each brain is capable. Just where the boundaries between these three professions will be drawn in the future it is impossible to say. They are not likely to remain the same as hitherto. A medical man trained in the method of checking every stage of speculation by direct observation, soaked in the anatomy and physiology of the central nervous system and its development from humble beginnings, is capable of becoming of invaluable assistance in the development of better methods of education. By education I mean, of course, not any narrow school curriculum, but the whole process by which from infancy stimuli are applied to obtain a maximum development of brain function.

Consider, for instance, Head's analysis of cases showing lesions in the neighbourhood of the optic thalamus. Primitive sensations of pain, heat, a
cold released from the control of the cortex a
felt in an " all or nothing " manner, either intense
painful or not at all. Feelings of disagreeableness su
as from scratching the palm with the finger-nail,
from squeezing a part of the body, are imbued with
much more intense feeling of aversion on the affect
side, and even stimuli producing emotional sensatio
such as mournful music could not be borne by some
the patients because of a disagreeable sensation on t
affected side only. In this comparatively primitive p
of the brain, sensation or emotion is felt in an ov
powering " all or nothing " fashion. Thinking ov
this, we begin to understand how it is that waves
over-mastering emotion will sweep through a primiti
or uneducated throng ; how it is that the mo
unreasonable certain likes and dislikes are, the mo
intense and overwhelming and fundamental th
appear to their possessors. Head's analysis of lesio
of the cortex showed that no amount of destructi
would abolish crude sensation but only the power
comparison ; the sense of longer or shorter, hotter
colder, rounder or squarer, thinner or thicker, heavi
or lighter, and the comparative position of the lim
in space. We can see at once that such discriminati
sensation is at the basis of all comparison of one thi
with another, and therefore of all reasoning pow
There is no strong driving emotional sensation in t
cortex ; it is essentially a critical organ.

Emotion Harnessed to Intellect.

Putting together these observations on the cort
and basal nuclei we begin to understand how it
that strong emotions so readily accompany our mo
indiscriminative and ill-considered actions ; why it
that the critical and reasoning faculties seem so oft
to us hard and dry ; how difficult it is to get emotio
enthusiasm to irradiate reasonable conduct ; why
so often think in one way and act in another, in fa
these different layers of development are probably t
explanation of the mental conflict which is so distre
ing a feature of civilised life.

> " Give me the man that is not passion's slave, and I
> wear him in my heart's own core ; yea in my heart of heart

The theme underlying all Shakespeare's gre
tragedies was the pathos of great character over-bor
by an emotion. The truth appears to be that we ne
emotion as a driving power to carry us along to acti
and that the cortex or discriminative part does n
possess this of itself, but is dependent on borrowin
so to speak, from a more primitive part. By a proce
which is technically known as facilitation, or mo
popularly as habit, the emotion may be got to wo
more readily with discrimination, but if this connexi
is to be at all strong it must be started at a very ea
age. This linkage of the emotion with the intell
seems to me at the basis of all successful educati
The failure of the crammed boy to make a succe
in after life because his emotions have never be
harnessed to his intellect is an instance in point.
by means of early training we can in the majority
human beings make the emotions the servants a
stimulators of the intellect, we shall have no ne
to teach ; people will teach themselves ; misunde
standings and quarrels between individuals, which a
all really irrational, will largely disappear ; and men
conflicts will cease to be the scourge that they are
present. The necessity for this junction has, of cour
been long recognised by far-sighted individuals.
is what Emerson meant when he said, " Hitch yo
wagon to a star " ; and the process is known to psych
logists as sublimation. The medical man, howeve
with his observations on disease such as those by Hea
or his experiments on facilitation such as those
Sherrington, is laying a sound foundation for a scien
which will deal with education.

THE MEDICAL MAN OF THE FUTURE.

My imaginary medical man of the future will
largely engaged with this most important of
subjects. How far the process of sublimation can
effected in the mass of mankind by means of ea

aining is a matter which only the future can decide, ut the prize is so great that it is worth some seeking. am myself optimistic. The plasticity of the human rain is its most striking characteristic; it was evolved ecause it made man capable of fitting himself to any hange in his environment. The brain is now being sed for very different purposes from those for which was evolved. The importance of early beginnings not easily realised by the majority of men. We are pt to think of children in a sentimental, non-rational ay. But in most of us the force of public opinion ften acts like the proverbial snowball. Looking back n the past 15 or 20 years the altered attitude of people n the subject of infant welfare is amazing. I quote paragraph from a modern book—

> "The causes of the imperfections and ill-health of adult e are now being sought at their source—the mistakes in fancy. The helpless, innocent crying babe, once con- lered a by-product of obstetrics, has become the centre a sociological and medical movement such as the world s never known."

Mayhap in another 20 or 50 years the importance of -digging our mental foundations will be as widely cognised. What is needed as a preliminary to progress a fuller study of children with regard to their men- lities and the things which are attractive to them various ages, and the conducting of well-controlled periments in linking the steps of developing dis- imination, based on the guidance of these observa- ons. Educationists are attempting this, but I am sular enough to believe that medicals will in many ays do it much better. The clinician is trained on the dividual case, he is less influenced by the artificial les of the game; to him if the theory does not incide with the observation, so much the worse r the theory, it must either be patched or scrapped; is less likely to throw together masses of undigested atistics and draw erroneous conclusions from them; knows more at first-hand about the interaction of dily and mental health, and he has a better basis of atomy, physiology, and embryology to work from.

I quote from a book called "The Making of the estern Mind," a survey of European culture from e time of the Greeks up to the present day, written two literary men:—

> "Medicine is the best example of unquestioned progress e to science, and partly as a cause and partly as a result this we find medical men the most hopeful of the future d confident of their powers. Their science is the best pe of accurate and systematic knowledge applied to the od of man. It has the high merit of encouraging us to pect similar results in political, social, and economic atters and to take steps to secure them."

The Need of Efficient Training in Psychology.

If we are to take our part, and possibly the leading rt, in what may be the greatest movement in man's story it behoves us to be up and doing. The present ate of a medical man's training in psychology is little ort of scandalous. The really efficient general actitioner is a marvel in the development of his ychological sense, and one runs little risk of contra- ction in saying that the greater part of the good at he does is by its means. It is an extraordinary lvertisement for the benefit of direct learning from ture that a man without possibly a syllable of book ychology should yet be able to attain such skill. ut these are the gifted ones in the profession and even ey suffer through lack of scientific training, and pecially from an inability to generalise, so that the sults of their observations die with them. In order at the mass of the profession should participate d that these observations should be available as epping stones to higher things it is necessary that ere should be an educative substructure.

Psychology is a subject which is in vogue at esent, especially with the man in the street, and consequence there is a good deal of rubbish foisted to the public; but there is a true solid and rapid vance being made, and there is a special need for a tically trained profession to make it their own.

Whether or not we are called upon to take our share the right development of the growing mind, there is still a huge scope for medicine in the patching and mending of the adult mind. Our attitude towards neurotics in the past has been too much that of the priest and Levite; we diagnose the condition and then pass by on the other side with a shrug of the shoulders and the phrase: "It's only a neurosis. Let's go and look at some interesting organic disease."

My imaginary doctor of the future will reverse the process. With him it will be, "Oh, this is only an organic disease, just run him through the machines; but here's an interesting neurosis: did you ever meet with such a remarkable combination of phobias?" At present there is nearly always the feeling at the back of our minds that it is the patient's own fault that he is in this state of mind. Approaching him like this we are bound to make him feel humiliated. To destroy his self-respect is the very worst treatment for a neurotic; seven other devils worse than the first will enter him if we are successful. But we seldom are, because the patient's own defiance or negativism, as it is technically called, is aroused, and we find ourselves without influence. "That doctor didn't understand my complaint" is what is said as soon as our back is turned.

The French proverb—"To understand everything is to forgive everything"—may be considered as a prophecy that, in the future, a narrow morality will be superseded by a more truly scientific method of dealing with mental twists. Moral disapprobation—making people feel ashamed of acts which are not for the benefit of the community—is the strongest weapon which society has been able to wield hitherto for the coercion of the individual, but there are signs that it is now being regarded as not very well fitted to our needs, and, in many instances, as cruel and ineffectual; liable, in some cases, to lead to hypocrisy and subterfuge, in others to defiance and a sense of injustice. Medicals are particularly liable to be struck by the injustice of its action. They see an epileptic who in the normal course of his life is honest and law-abiding, but who for certain periods before or after a fit, or even independently of a fit, becomes a liar, a thief, or even a murderer. They see a person with heart disease, who has been placid and affectionate, become irritable, unruly, and impossible to live with. They see a dipsomaniac or sexual pervert in whose case there is a clear family history of the same disease. Application of one universal panacea of moral indignation reinforced by criminal proceedings leads largely to concealment and aggravation.

"Erewhon."

Samuel Butler in "Erewhon" satirises the indiscriminate application of such a crude remedy by making the inhabitants of that country reverse our own procedure with regard to physical and mental aberrations.

> "In that country if any man falls into ill-health, or catches any disorder, or fails bodily in any way before he is 70 years old, he is tried before a jury of his countrymen, and if convicted is held up to public scorn, and sentenced more or less severely as the case may be. There are subdivisions of illnesses into crimes and misdemeanours as with offences amongst ourselves—a man being punished very heavily for serious illness, while failure of eyes or hearing in one over 65, who has had good health hitherto, is dealt with by fine only, or imprisonment in default of payment. But if a man forges a cheque, or sets his house on fire, or robs with violence from the person, or does any other such things as are criminal in our own country, he is either taken to a hospital and tended most carefully at the public expense or if he is in good circumstances, he lets it be known to all his friends that he is suffering from a severe fit of immorality just as we do when we are ill, and they come and visit him with great solicitude, and inquire with interest how it all came about, what symptoms first showed themselves, and so forth—questions which he will answer with perfect unreserve; for bad conduct, though considered no less deplorable than illness with ourselves, and as unquestionably indicating something seriously wrong with the individual who misbehaves, is nevertheless held to be the result of either pre-natal or post-natal misfortune.
>
> "The fact that the Erewhonians attach none of that guilt to crime that they do to physical ailments, does not

> prevent the more selfish among them from neglecting a friend who has robbed a bank, for instance, till he has fully recovered; but it does prevent them from even thinking of treating criminals with that contemptuous tone which would seem to say, 'If I were you, I should be a better man than you are,' a tone which is held quite reasonable in regard to physical ailment. Hence, though they conceal ill-health by every cunning and hypocrisy and artifice which they can devise, they are quite open about the most flagrant mental disease, should they happen to exist, which to do the people justice is not often. Indeed, there are some who are, so to speak, spiritual valetudinarians, and who make themselves exceedingly ridiculous by their nervous supposition that they are wicked, while they are very tolerable people all the time.
>
> "They send for the Straightener at once whenever they have been guilty of anything seriously flagitious—often even if they think that they are on the point of committing it; and though his remedies are sometimes exceedingly painful, involving close confinement for weeks, and in some cases the most cruel physical tortures, I never heard of a reasonable Erewhonian refusing to do what his Straightener told him, any more than of a reasonable Englishman refusing to undergo even the most frightful operation, if his doctors told him it was necessary."

He thus makes fun of the doctor who refuses to deal with anything outside the physical sphere:—

> "I heard of one lady, who had the hardihood to confess that a furious outbreak of ill-humour and extravagant fancies for which she was seeking advice was possibly the result of indisposition. 'You should resist that,' said the Straightener in a kind but grave voice; 'we can do nothing for the bodies of our patients; such matters are beyond our province, and I desire that I may hear no further particulars.' The lady burst into tears, and promised faithfully that she would never be unwell again."

There is little doubt that medical men will have to be called in to take their part in questions involving moral conduct, and that their part will be that of investigation, and the choice of the most suitable remedies. Already in a few cities a considerable proportion of the juvenile offenders are referred by the magistrates to a medical man with special experience, in order that their mental calibre may be assessed, and appropriate treatment advised. In a few large prisons the medical officer is specially chosen to perform a similar function. Unfortunately, the paucity of the means of treatment at present available largely handicaps their efforts. The worst cases can be placed in an institution for the mentally defective; for the rest there is little else than the Borstal system. With the advent of a real and whole-hearted determination to deal scientifically with mental aberration the crude remedy of moral disapprobation will slowly disappear, and then our patients will no longer fear to expose their weaknesses in the early and incipient stages. The basis of truth underlying the Freudian theory appears to me to be dependent on this rough and harmful action of the moral conventions on the integration of the brain processes.

EUGENICS AND THE SUPERMAN.

What will be our attitude in the future with regard to heredity and eugenics? The profession as a whole takes very little interest in these subjects at present, but the man in the street a great deal. Is it right that we, who have to advise on the production of children, and of healthy children, should take no concern in the production of wise children? Accumulation of the results of mental tests on school-children is making it clear that heredity is an enormous factor in mental capacity. The uncritical man tends to jump to the conclusion that we can breed a race of supermen. There is a great deal of talk bandied about at present, that we take much trouble to breed good horses, dogs, sheep, and cattle, but allow human beings to mate at random. There is a probable source of fallacy in this argument. We breed our animals for single qualities such as strength, speed, large milk-supply, thick wool, or a faculty for retrieving. The human brain is an immensely complicated combination of different qualities and dependent for its success on the balance between them. It may be that there is a high correlation between these qualities, but we must not take this for granted. It is unlikely that for a long time to come we shall have sufficient knowledge to be able to con
even in any rude fashion, the factors that go to
making of a superman. A tiny nation with a pop
tion about equal to that of Portsmouth produce
about 200 years as much genius as the whole of
rest of the world in the whole of the rest of time. W
went to the making of this people?—a rude, war-
hunting northman from the forests of Central Eur
and a savage, superstitious, revengeful man livin
the shores of the Ægean. Who would have though
The miracle has not yet repeated itself. The nu
of permutations and combinations is too great f
repetition in so short a space as 2400 years.

Then, too, the production of a stable natio
dependent probably on a considerable varia
between the brains of its individuals. This enormo
complicates the problem. There seems to me l
chance of this kind of eugenics coming into the r
of practical politics in the near future. I hope
successors will have taken up the question before l
its importance and difficulty do not need emphasi

Such questions as whether sterilisation of ment
defective persons can eliminate the condition are r
medical. Medical indifference has led to c
logicians throughout the country advocating leg
tion for this purpose. A very little thought s
that high expectations will be disappointed. If me
deficiency is inherited as a Mendelian recessive,
claimed, the number of persons showing the cond
is very small compared to those that carry it in t
germ cells. Last year I took the trouble to work
the length of time it would take to reduce the cond
nearly to extermination point by the sterilis
method, even supposing that all cases were hered
and no fresh cases arose by mutation. I found it
into thousands of years. Subsequently I found
in 1917 Punnett had worked out the same thing
the U.S.A. figures. He showed that if the proporti
Mendelian heritable mental deficiency is 3 per 10
the population, it would require 250 generation
8000 years, to reduce it to 1 in 100,000 by the me
of sterilising those who show the character.

There are many possible avenues open to the me
profession in the future. We most of us like to ind
our fancies at times, and a little speculation hel
to be ready to take up with forethought our
altering duties.

The Principles of
SYMPTOMATOLOGY:
AN INTRODUCTION TO A NEW OUTLO
IN MEDICINE.

By Sir JAMES MACKENZIE, M.D. Edin.
F.R.C.P. Lond., F.R.S.

(From the St. Andrews Institute of Clinical Resea

In Three Parts.—Part II.

In Part I. (The Lancet, *Nov. 3rd) there was
lined the general problem of ill-health and the
outlook in its respect. The principle of the "r
arc" was explained.*

4. The Law of Fluctuation.

I have already mentioned that in trying to us
principle of the reflex arc it was some time befor
found out how to apply it in practice. Wh
occurred to us that the best way was to procee
resolving the arc into its component parts, we s
for instances where it could be applied. In
endeavour we used two methods, first by seekin
simpler forms of disease where not only the agent
the reactions could be recognised, and second
taking instances where the unit of the arc w
disturbance produced the symptom could be r
nised.

In seeking for the reactions easy of recognition, we only followed the practice of the physiologist who takes the simplest reactions, as the nerve-muscle preparation, to find the evidence of the most important laws which govern the production of vital phenomena. The occurrence of conjunctivitis following upon the lodging of a foreign body in the cornea was an opportunity of studying the principles of symptom production. The lacrymation, the blepharospasm, the injected capillaries, were recognised as being but the increased activity of normal reflexes; there was no new factor introduced. At the same time pain was felt, and it was reasonable to suppose that pain was produced in the same way—by increased activity of the organs normally regulating the function of the eye. From this way of looking at the matter, sensations are produced by the same process as the other symptoms—i.e., an increased stimulation is conveyed to the effector organs (lacrymal gland and muscles of the eyelid and the sensorium) and they respond by increased activity (lacrymation, blepharospasm, pain). A similar series of events occur in vomiting. Tickling the fauces may produce the sensation of nausea, a flow of saliva, then the act of vomiting. Here again the sensation of nausea was produced in the same way as the increased flow of saliva and vomiting. Hitherto, sensations have been looked upon as something distinct from objective signs, but a fuller knowledge of the reflex shows that they all belong to the same category of vital processes.

Another organ for observation that lies to our hand is the skin, and a number of extremely important deductions of universal application resulted from the more accurate investigation of skin sensations. We found that under ordinary conditions the sensibility of the skin varied in a remarkable manner. Areas of the skin may become hyperalgesic as a result of nerve injury, disease of the spinal cord, or from visceral disease. In my graduation thesis which was published in THE LANCET in 1883 [1] I described a case of hemiparaplegia spinalis in which there was an area of cutaneous hyperalgesia. The border of this area was not sharply defined, there being a region between the normal areas and hyperalgesic areas, where the sensibility may vary remarkably. Small areas were at one time extremely sensitive to touch and to pain stimuli, while other areas were insensitive. After a few minutes the former areas were no longer sensitive, while the insensitive areas have become sensitive. Further observation in cutaneous hyperalgesia in lesions of the nerves, in herpes zoster and in visceral disease revealed the same phenomenon. In our recent investigations the sensations of heat and cold in the normal skin were found to vary in the same way. These sensations are usually described as occurring in "spots." It was found that while there are spots that are sensitive to heat and cold, and spots that are insensitive, after a time these sensitive spots are no longer sensitive, while the insensitive spots become sensitive. These results have been described by Prof. Waterston.[2] [3]

In some people the skin has a mottled appearance, particularly in the legs or arms of the young. The mottling is due to pale patches mixed with patches of a darker hue. If one of these patches be surrounded by a line of ink, it will be found after a few minutes that the dark patch has become pale and the pale patch dark. In these dark patches the venules and capillaries were dilated, while in the pale patches they were contracted. From this we inferred that the capillary field was continually passing into a state of dilatation and contraction and vice versa. This variation in the sensations of the skin and in the capillaries we called "fluctuation," and led us to seek for its evidence elsewhere and we found that it is a phenomenon present in every organ which consists of active cells.

As we proceeded in the inquiry we found that it was impossible for us to understand the nature of the regulating process without a fuller knowledge of this matter, and Prof. Herring [4] has dealt fully with it elsewhere. The recognition of this law has compelled a closer inquiry into the function of cells, the result of which it is necessary to describe.

5. THE CELL.

There is a fairly common belief that for clinical medicine a superficial knowledge of physiology is all that is required, and that an accurate knowledge of details is only necessary for what is called scientific investigation in the laboratory. This is a mistake. The phenomena with which clinical medicine deals are far more subtle and more difficult to detect than the phenomena with which the physiologist deals. The disturbances which lead to the production of symptoms are often but the slightest departure from the normal, and are produced by agents far more delicate than those employed by laboratory experiment, while the result (or symptom) is so subtle as to be often beyond the capacity of a physiological instrument to register, though capable of recognition by appropriate clinical methods. The application of the principle of the reflex arc requires a knowledge of cell function of an intimate kind, and although the matter is dealt with in physiological text-books, it may not be amiss to recapitulate some of the main features of cell activity, and to dwell upon some features that have not received that attention which is their due.

The Excitability of the Cell.

All the special functions of fully-developed cells are to be found in a rudimentary state in the primitive cell. Many seemingly diverse functions proceed from the same root function—these root functions having become modified to suit a particular purpose, which the fully-developed cell has to fulfil. As a consequence, we find many terms used to describe processes which are fundamentally identical. A living cell takes in nourishment, and alters it so that it is transformed into different forms of energy, which, when discharged, appear as the specialised function of the cell, as contraction, secretion, conduction, perception of sensation, stimulus production, &c. The discharge takes place in response to a stimulus from without, so that the cell is excitable or capable of being stimulated. The susceptibility to stimulation varies, so that at one time a cell may respond to a relatively weak stimulus, at other times it may respond only to a much stronger stimulus, or there are times when it does not respond to any form of stimulation.

These variations in excitability are dependent on the nutrition of the cell. When the cell is fully stored with energy it is "excitable," that is, it is susceptible to a weak stimulus. When it has discharged its energy it is incapable of further effort till the store of energy is replenished, so that during the time it is discharging energy, and until some energy is restored, it is incapable of further activity, and so cannot respond to any form of stimulation. As its store is being replenished it becomes capable of discharging energy, and becomes more excitable. With the increase in the store excitability increases and the amount of energy discharged is also increased, so that a weak stimulus produces a maximum effect.

The conversion of food into the different forms of energy is chemical or metabolic, and can be accelerated or retarded by various agencies. The simplest agents are heat and cold. Alteration in the constituents of the cell as by food, drugs, secretion of glands, toxins of disease, and nerve influence (vagus and sympathetic) affects the cell like heat and cold. Many terms are applied to the varying phases of these functions, as excitability, inexcitability, refractory period, latent period, raising and lowering the threshold of stimulation, "all or nothing," inhibition, &c. It is to be remarked that all the vital processes concerned in the maintenance of life and the healthy activity of organs are dependent upon these primitive functions of the cell. Further, all the phenomena of ill-health, and death itself, are produced by a disturbance of these processes, and in one or other of the two ways indicated—an increase or decrease in excitability.

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[1] THE LANCET, 1883, i., 995, 1040.

[2] The Sensations of the Skin, D. Waterston. Report of the St. Andrews Institute for Clinical Research, 1922, vol. i.

[3] The Activities of the Skin for Touch and Temperature, D. Waterston. Brain, 1923, vol. xlvi., Part 2.

[4] The Law of Fluctuation or of Alternating Periods of Activity and Rest in Living Tissue, P. T. Herring. Brain, 1923, vol. xlvi., Part 2.

Impulse Production.

Among the specific functions of cells there are two which have not received that consideration which their importance requires—impulse production and control. Every cell when it discharges its function throws out at the same time impulses which affect neighbouring cells. The effect of their impulse can sometimes be demonstrated by the reactions which they produce on other organs. They may also be detected by delicate electrical instruments, as on the passage of an impulse along a nerve, or on the contraction of muscle. While these impulses may be expressed as an alteration in the electric potential, or in other ways, they nevertheless play an important part by their effect upon the process that regulates the function, not only of the organ whose cells produce the impulse, but also of those organs with whom they are related through the nervous system, or in other ways. We have studied some of the effects produced by impulses which are generated by the contraction of muscle cells, and some of our results will be discussed later, but there is reason to suppose that the generation of these impulses is not peculiar to muscle cells. This function of impulse production becomes the chief function of certain organs, as the sino-auricular node of the heart. In the cells of the node are generated the impulses which cause the contraction of the heart. In the same way among the functions of the higher centre in the brain is that of generating and discharging impulses such as those that cause the contraction of voluntary muscles.

Control.

Another somewhat vague influence exerted by certain structures is that of "control." I am quite aware that such a term, used as I use it, is unsatisfactory, and it is quite possible that the phenomena I attribute to this cause can be explained in other terms, but its use in a specific way calls attention to some important agencies at work, and though we may recognise their effects, we cannot clearly understand how the effects are brought about. While the most evident example is the control exercised by the will, as in modifying the rate of breathing and other instances, and which is called "inhibition," there are evidences of the presence of control independent of the will. In experimenting on the motor reflexes, Sherrington had to decerebrate the animal—that is, remove it from control of the cerebrum. In testing the knee-jerk, the reflex is said to be "reinforced" if the patient's attention is fixed, that is, if the control of the cerebral cortex is removed.

The principle that the function of an organ is not fully understood until it is lost applies to this control. When a motor nerve to a voluntary muscle is cut, the muscle is no longer under the control of the nerve, so that it cannot be made to contract voluntarily or reflexly, but it does not lie inert, but passes into a state of fibrillatory activity. Even when the control of the nerve is temporarily suspended the muscle may pass into this state, which disappears at once when the nerve resumes control. A similar effect is seen in the heart. When the sino-auricular node ceases to act the muscle fibres of the auricle pass into fibrillary activity. But more than that happens, for when the dominance of the S.-A. node is suspended the ventricular action becomes affected in a peculiar manner; its contraction becomes often incomplete, it becomes much more susceptible to stimulus by agents which increase or decrease its rate, and is often productive of extreme failure of the circulation. The recognition of this has opened a new phase in cardiology.

The Functional Part of the Cell.

We are accustomed to speak of the special functio of a cell as if it were the cell body which dete mines its peculiar function. While this is true i regard to muscle and secretory cells, it is not true i regard to many neurones. While all neurones ha the power of conducting impulses, in some there ma be a part endowed with other specific function These may be in parts far removed from the c body. Efferent neurones, like the sympathetic an vagus, have a specific influence on effector organ This specific influence is not a property of the c body, but lies in the terminal branches of the ner fibre (F, Fig. 1). This is shown by the result obtain in stimulating these nerves when they are cut; t characteristic effect is produced by stimulating t peripheral end—that is, when it is separated from t cell body.

In afferent neurones the characteristic functio is a property of the peripheral branches of the ner fibre in what is called the "receptor" (A, Fig. 1 The specific sensation of touch, heat, and cold a due to the peculiarity of their receptor branche The significance of this constitution of an affere neurone will be discussed in the study of the affere nervous system.

6. THE AFFERENT NERVOUS SYSTEM.

The importance of the afferent nervous system i maintaining health and in the production of sympton is not sufficiently recognised, while it is not realise how little is known of this portion of the nervo system. This lack of knowledge constitutes one the main reasons for the failure to understand t processes concerned in the production of symptom So far our knowledge of the afferent system is main limited to the nerves concerned in sensation, and the form but a small part of this system, but they ha bulked so largely that it has been assumed that th constitute the chief part of the system, so that a afferent nerves are spoken of as "sensory." T employment of this term has been unfortunate, f although in physiology it is often used as synonymo with "afferent," yet its use has led to a great de of confusion in other fields.

As our investigation proceeds we obtain evidenc of this afferent system in all parts of the body. T autonomic nervous system is spoken of as "a efferent system," and yet there is every reason f assuming that there is also an "afferent" system large and as important in the maintenance of life the efferent. As the special functional peculiarity the afferent nerve lies in the receptor end of t neurone (A, Fig. 1), if the nerve be cut stimulation either cut end does not call forth its special functio Thus, it would be futile to seek for the special functi of a cutaneous sensory nerve for the sense of touc heat, and cold by stimulating either cut end of t nerve. It is true the stimulation of the central e might cause a muscle contraction, but it would n produce these sensations, which reveal the function the nerve. So it is in regard to the afferent nerves the autonomic system—stimulating the cut en cannot reveal their peculiar function. Although t receptor part of the afferent nerve is not usuall capable of demonstration, yet the evidence of i presence is beyond dispute. It has been shown in o investigation on skin sensation that a specialise receptor for the stimulus which gives rise to the sens tions of touch, heat, and cold cannot be recognise yet when the skin is damaged the receptor is damage along with it, and these sensations cannot be repr duced by any form of stimulation.

As we proceed in our inquiry the presence an peculiar function of receptors in the viscera becom more and more apparent. The difference between t stimulation of a nerve by means of its receptor and i cut end can be seen in the case of the phrenic nerv If the peripheral end of a cut nerve be electricall stimulated, or if it be laid over the heart, the sam result follows, a sudden short contraction of th diaphragm. When, however, the phrenic nerve stimulated in the normal act of breathing—that is, by mpulses sent in from the periphery by afferent nerves o the respiratory centre—the contraction of the diaphragm is slow and gradual. It must be clearly recognised that a great many afferent nerves have receptors which serve other purposes than sensation. It may be taken for granted that every structure which s endowed with functional activity is supplied with both afferent and efferent nerve fibres. For the timulation of the afferent receptors an adequate timulus is required. Those which are concerned in the production of sensation require a particular kind of timulus; those concerned in other functions require also a particular stimulus.

This difference can be shown by applying a mechanical stimulus to the different tissues of the body. Touch, pinching, pricking, burning, heat, and cold give rise to definite sensations applied to the skin, but when applied to other tissues they may yield no sensation. Thus, one may prick with a pin the skin around the anus and produce pain, but if the pricking be continued into the mucous membrane of the bowel no sensation results. Indeed, most of the viscera can be handled, cut, torn, and burnt, and no sensation be produced. Yet we know that from some of these viscera impulses may be conveyed into the central ervous system which result in a great many manifestations, including pain. The inference from this is that ust as a particular kind of stimulus is required to ffect the skin receptors, so a particular kind of timulus is required to affect the receptors of the fferent nerves of the viscera. As the stimulus cannot be a mechanical one, it must be due to some vital process.

The organs of the healthy body are continually ubject to a stream of impulses which enter from without, or are produced in the body by the activity f the organs themselves. These impulses, wherever hey arise, are conveyed by the nervous system to the rgans and modify their functional activity. These mpulses have a far wider effect than is realised. This an be shown in many ways. The stroking of the skin nder the breast by a rough cloth produces a variety f effects besides the sensation of touch, as the production of a localised goose-skin, and of a widespread oose-skin, which appears on the chest and down the nner side of the arm. This may be accompanied by sensation of chilliness, due, in all probability, to a ontraction of the capillaries of the skin over the same egion as that in which the goose-skin appeared. In ddition, there may be a dilatation of the pupil. Such phenomena are evidences of effects produced in the entral nervous system by a slight stimulation of the kin. As we pursued our inquiry we found this preading of impulses in the central nervous system was the occasion of the production of a great many ymptoms in organs widely separated, as nausea, vomiting, sweating, pallor, and pain, as in renal olic.

Our inquiry then proceeds to find out what vital processes are adequate to excite the receptors. Many phenomena are produced by visceral disease which are dependent for their production on stimulation of the afferent nerves. In certain states of ill-health careful xamination of the abdomen reveals the presence of hard and contracted muscles, and of areas of tenderness, due to a hyperalgesic state of the skin and deeper issues of the external body wall. These phenomena indicate the presence of some disease process in the abdominal organs. Other phenomena often accompany these signs or appear without them, as nausea nd vomiting, increased pulse-rate, pallor, sweating, pain, &c. All these phenomena indicate increased activity of the afferent nervous system, and indicate urther the presence of some particular stimulus which s capable of acting upon the receptors of afferent nerves.

It has seemed to us that there are only a few actors which are capable of producing this adequate timulus, and in our research we are as yet able only o identify one—viz., impulses arising from the contraction of muscles.

7. The Generation of Impulses.

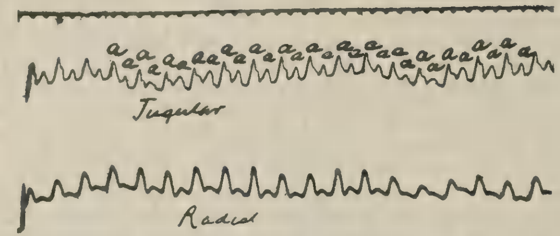
It is a matter commonly accepted that all the organs are linked together in such a way that one organ reacts upon the other through the nervous system. This has just been exemplified in describing the widespread effects resulting from a local stimulus from the skin and ureter. The generated impulses in one organ are taken up by the receptors of the afferent nerves and conveyed into the central nervous system and through it to the efferent nerves of the effector organs. While such an explanation is accepted, little is known of these impulses or how to investigate them. It is admitted that there is a continuous inflow of impulses from the skin and special sense organs—that indeed consciousness is dependent upon this. While this is recognised, we know little of the manner in which these impulses affect the organism. We think only of the brain, but almost certainly every organ of the body reacts to these impulses. It has just been pointed out that impulses from the skin gave rise, not only to the sensation of touch, but to a widespread goose-skin and dilatation of the pupil. These are in all probability only a few of the reactions that were produced. If it be considered how such stimulation arises from the skin with every movement of the body which causes the slightest friction, while impressions are also sent in from all the sense organs, we obtain a glimpse of the manner in which the function of organs may be influenced.

In addition to the impulses from without there are the impulses that arise in the organs themselves, which react upon one another. In the description of the function of the individual cell it was pointed out that in addition to its peculiar function it also had the faculty of throwing out impulses. These can affect the receptors of afferent nerves. Such impulses are not always easy of detection, not because the evidence of their presence is absent, but because it has not been understood how to link up the evidences with the parts concerned in the production of the impulses.

The impulses produced by muscle-cell activity are the easiest to demonstrate. One evidence has already been quoted in the experiment when the peripheral end of a cut phrenic nerve is laid over the heart. Impulses from the contracting ventricle stimulate the nerve, and these are conveyed to the diaphragm which results in a contraction, so that the diaphragm contracts regularly with each ventricular systole. It is these impulses produced by the contraction of muscle cells which give rise to the characteristic electric reaction of the electrocardiogram. In the condition called auricular flutter weak beats occur which can be counted. They frequently occur at the rate of 300 per minute. Lying in the wall of the auricle and exposed to these impulses is the auriculo-ventricular node. Stimulation of this node results in a contraction of the ventricle, so that we can count the number of impulses generated in the auricle by the rate of the pulse. At times the ventricle responds to every auricular impulse—more often it responds to every second. The reason for this is that the A.-V. node does not recover rapidly enough to be susceptible to every impulse from the auricle. This is represented in Fig. 5, which is a tracing of the auricular waves in the jugular (*a*), and of the radial pulse taken at the same time. The explanation of the tracing is given in the diagram Fig. 6. Here the auricular contractions are represented by the down strokes in the space AS—while the ventricular contractions (radial pulse) are represented by the downstrokes in the space VS. It will be seen that the auricular systoles are exactly double the ventricular. The space A.-V. represents the auriculo-ventricular node, and the shaded parts represent the period after its excitation when it cannot respond to a stimulus. It will be seen that every alternate auricular systole falls during this shaded period and its transmission to the ventricle is blocked by the refractory A.-V. node. The next auricular systole falls at a time when the excitability of the A.-V. node has returned, and so it transmits the impulse to the ventricle.

From these observations the conclusion was drawn that muscle cells when they function not only produce their peculiar effect, such as contraction, but also produce impulses capable of stimulating other cells. When this conclusion was arrived at the question arose, how this could be demonstrated?

FIG. 5.

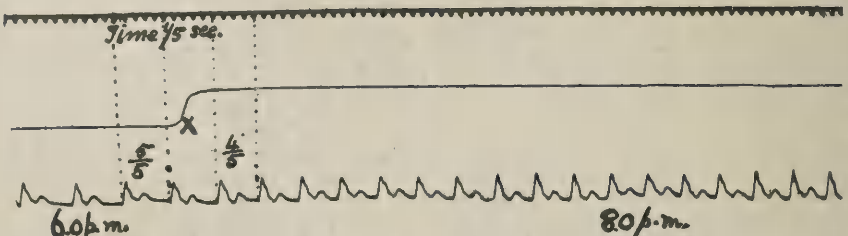


Tracings of the jugular and radial pulses during auricular flutter. The waves, *a*, are due to the auricle and are at the rate of 300 per minute. The alternation in the size of these waves is due to one beat of the auricle falling during ventricular systole, giving rise to the larger waves, and the other beat falling during the ventricular diastole. The rate of the radial pulse is 150, exactly half the auricular rate. The reason for this is shown in the diagram Fig. 6.

At first we bewailed the absence of delicate electric recording instruments, then we reflected that in the living body were means probably more sensitive, and we set about to find some way of demonstrating their presence. For a long time the mechanism of the increased heart rate in response to effort has been a puzzle, and it occurred to us to see if impulses from contraction of muscles could cause it. A continuous record was taken of the pulse of a man when he was lying on his back. After the rate had settled down he was asked to contract the muscles of his calf. Although it is at first difficult to do this without contracting other muscles of the body and holding the breath, with a little practice it can be done. When these muscles are contracted the rate of the heart begins at once to increase, and the increased rate continues for a short period after they are relaxed.

Fig. 7 shows this result. The signal X shows the time the muscles began to contract. The increase in rate begins with the second beat, and it lasted for four beats after the contraction had ceased. The rate rose from 60 beats per minute to 80. This is a fairly typical response—as it has been suggested that in making a voluntary effort, impulses from the cortex might affect the vagus, we sought for muscular effort which occurs independent of volition, and we took a number of observations on women in labour. On observing the onset of a uterine contraction before pain is felt and before the patient holds her breath or "bears down," the heart-rate increases. This is seen even in the early and slighter contractions, when the patient does not hold her breath.

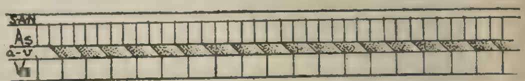
FIG. 7.



Showing the increase in pulse-rate on contraction of the muscles of the leg. The signal X indicates the time of contraction. The rate increased from 60 beats per minute to 80, and began after the first beat (from five-fifths of a second to four-fifths per beat) and lasted for a few beats after the contraction had ceased.

There are, no doubt, other factors concerned in maintaining the increase in rate during effort, but it is evident that the earliest is due to the contraction of the muscles, and some of these other factors may be the result of stimulation from the same source—an inference which is justified from the spread which occurs on stimulating the skin and in renal colic. What we are concerned with here is to establish the fact that, when a muscle cell contracts, impulses arise which are capable of stimulating afferent nerves.

FIG. 6.



The diagram of the events shown in Fig. 5. The upper space S.-A. N. represents the sino-auricular node which is out of action (compare Fig. 8). The downstrokes in space A.-S. represent the auricular beats at the rate of 300 per minute. The space A.-V. represents the A.-V. node. The shading represents the period when the node is not susceptible to stimulation. It will be seen that every second beat falls during this period, and there is in consequence no response by the ventricle. The downstrokes in V.-S. represent ventricular systoles as shown by the radial pulse in Fig. 5. They are half the rate of the auricular systoles. This diagram, like that in Fig. 8, illustrates the principle of the reflex arc in that it brings out where the disturbance occurs which results in an abnormal rhythm of the heart.

In Sherrington's discussion of visceral sensation[6] he points out that the receptors of afferent nerves are adapted to particular stimuli. "Adaptation has evolved a mechanism for which one kind of stimuli is the appropriate, *that is, the adequate stimulus.*" He goes on to point out that while mechanical stimuli as cutting, burning, &c., cause no sensation, certain forms of mechanical stimuli may do so, such as *distensile* stimuli. But distensile stimuli are only adequate provided they cause a contraction of muscle. One of the most powerful stimuli for contraction is stretching of the muscle fibres, as can be readily shown by giving a distending enema.

Muscle contraction is used here as an example because it provides such unmistakable evidence of the generation of impulses, but there is little doubt that every active cell produces them, although they are difficult to prove in the healthy body. In diseased states, however, symptoms are provoked which can only be explained in this way. In such diseases as gastric ulcer, appendicitis, the muscles of the abdomina wall may become rigidly contracted, and the skin and deeper tissues become hyperalgesic. It is quite justifiable to draw the conclusion that these phenomena are the result of impulses which arise in the diseased organ, and which are conveyed to the central nervous system in the manner described in the diagram Fig. 2.

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[6] The Integrative Action of the Nervous System, p. 12 C. S. Sherrington. 1906.

GYNÆCOLOGY AND GENERAL MEDICINE:

THE RELATION BETWEEN CERTAIN DISORDERS OF THE FEMALE PELVIC ORGANS AND SYMPTOMS ORDINARILY CONSIDERED THE PROVINCE OF THE PHYSICIAN.[1]

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THE science and art of medicine form a subject so vast in range that no one mind can compass it in the brief span of life allowed. Most of us are specialists to a greater or less extent, concentrating on one or other of the many branches of medicine and producing by mass-action the world of medicine as a whole. If the advantages of specialism are manifest, so also are the disadvantages, for compartmental study (as we venture to call it) is very cramping to the mental outlook, tending to direct it to the part rather than the whole. It is only through general physicians that the assembled results of specialists are rendered of the greatest possible service to the patient. We regard the general physician as a liaison officer whose function is to correlate, harmonise, and dovetail the views of the specialists. We have heard it stated that the general physician, if not already "extinct," will very soon be crowded out of existence by the ever-multiplying horde of specialists. As one of us belongs to this threatened race he begs to protest that he is more necessary than ever.

The subject of this paper is the relation between certain disorders of the female pelvic organs and symptoms ordinarily considered the province of the physician, and we have introduced it because, unfortunately, there still exist among us physicians who never make a vaginal examination and gynæcologists whose conceptions end at the brim of the pelvis.

Early Conception of Gynæcology.

Gynæcology began as a department of medicine. This is well seen by the fact that it was recently incumbent on those aspiring to take up this specialty that they should become Members of the Royal College of Physicians of London. It has now become a branch of pure surgery, no doubt to its great advantage, and yet with a certain loss. Text-books on diseases of women, written upwards of 50 years ago, devote as much space to the consideration of symptoms collaterally affecting the body as a whole as to those directly located in the genital organs. Such terms as "sympathetic" and "reflex" which were applied to these symptoms when viewed in the light of to-day's knowledge, appear to be cloaks for ignorance, and as gynæcology became surgical they caused the reality of the symptoms themselves to be denied or ascribed to the vagaries of feminine mentality. It was Huxley who pointed out that one of the commonest errors is to discredit a truth because the arguments used in its favour are bad. The old writers were not wrong. Symptoms referable to the intestines, heart, lungs, and body generally may be primarily due to a disorder of the genital apparatus, not sympathetically nor reflexly, but by the agency of toxic absorption or bacterial action, conditions of which our forefathers knew nothing, or, as we will show later, to some alteration in the anatomical conditions of the pelvic floor, the consequences of which they failed to recognise.

We do not propose to waste your time by describing the effects on the general health that grossly patent diseases of the female genitals, such as advanced carcinoma or heavily bleeding fibroids, obviously produce, but to draw your attention to certain clinical states that ordinarily would not be suspected of having a gynæcological origin. For example, we have found intestinal stasis, genito-urinary infections, arthritis, fibrocytis, sciatica, choroiditis, neuro-retinitis, cyclitis, all directly resulting from a gynæcological lesion and all relieved by attention to the local condition.

Weakened Pelvic Floor.

Let us take for our first consideration the effects of a weakened pelvic floor, perhaps the disorder where treatment gives the most gratifying results. These may be intestinal stasis (which in its turn gives rise to dilatation of the bowel, with a facility for the absorption of toxins); displacement of the uterus (which may again lead to intestinal stasis, the result of obstructive constipation); rectocele (and, as will be seen later, possibly prolapse of the rectum); and cystocele (with its risk of infection of the genito-urinary tract, giving rise to symptoms which may pass unrecognised). Of these, intestinal stasis is by far the commonest, and has the most serious effect on the patient. It is much more common in women than in men, a fact immediately suggesting that the peculiarities of the female pelvis may play a large part in the production of the condition.

We proceed, therefore, to consider the several factors involved in the process of defæcation in a woman, and the results produced when these factors become weakened or inoperative. The factors involved in the act of defæcation are: (*a*) the muscular contraction of the wall of the bowel; (*b*) the rise in intra-abdominal pressure produced by straining; (*c*) the contraction of the fibres of the levatores ani, whereby not only is the pelvic floor prevented from bulging downwards under the increased abdominal pressure, but the anal canal is pulled over the advancing fæces.

(*a*) *Contraction of the Bowel Wall.*—The ease with which a motion is expelled depends upon the relation between the power applied and the resistance encountered. Given a sufficiently vigorous contraction of the bowel wall, a very large motion can be expelled by that force alone, the power being sufficient to overcome the resistance of the sphincter even against the individual's will and in spite of voluntary rigid tightening of the pelvic floor in the endeavour to prevent the action. This effect of a violent aperient is common knowledge. When from any reason the motion is liquid the expulsion of the bowel contents by the bowel musculature alone is still easier since the resistance is much less.

(*b*) *Rise in Intra-Abdominal Pressure, Produced by Straining.*—Normally, however, defæcation is not accomplished by contraction of the bowel wall alone, but is aided by voluntary straining, the abdominal muscles and diaphragm contracting so as to compress the abdominal contents. This expressional force acts on the rectum chiefly by the medium of Douglas's pouch, which forms a pneumatic wedge compressing the rectum against the rigid sacrum behind. We have no means of seeing what changes occur in the disposition of the parts during such straining, but judging from what is seen during an abdomino-pelvic operation when, from faulty anæsthesia or some other cause, the patient commences to strain, one infers that coils of the small intestine are crowded down into the utero-rectal space (always supposing the uterus is normally anteverted) and that these coils transmit the pressure to the rectum. That such pressure is merely auxiliary to the contraction of the bowel wall is, however, manifest when one considers what violent straining is required to pass a solid motion in the complete absence of peristalsis, though a semi-liquid stool is expressed easily enough. The poor development of the circular muscle fibres of the rectum (excepting at the sphincter), as compared with the longitudinal muscle fibres, suggests that constrictive peristalsis probably ends at the junction of the colon with the rectum, the contents of the rectum being expelled by *vis a tergo* of the constrictive peristalsis of the colon above, and the pneumatic pressure of Douglas's pouch, the longitudinal fibres of the rectum in the meantime making rigid its wall and pulling the anus over the fæces.

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[1] A paper read before the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, Nov. 1st, 1923.

(c) *Muscular Pelvic Floor.*—The muscles of the pelvic floor and the levatores ani in particular play an important part in defæcation. In the first place their contraction opposes a resistance to the downward pressure of the diaphragm and abdominal muscles which the act of straining produces, so that the abdominal pressure rises and the pneumatic wedge of Douglas's pouch becomes effective. If the pelvic floor were composed of easily stretched material instead of muscles capable of considerable rigidity, it would simply bulge under the pressure. In this event not only would the abdominal pressure fail, but the whole of the pelvic viscera, rectum included, would be pushed down en masse with the pelvic floor to which they are attached. Such a happening would mean a breakdown of the whole mechanism of defæcation, the essential of which is that the fæces alone should descend, leaving the rectum and the other pelvic viscera in situ. The levatores ani have a dual action on the rectum. The anterior fibres (or pubo-coccygeus) when contracting draw the anus towards the subpubic angle, narrow the vaginal entrance by lateral compression, and make rigid the front part of the muscular pelvic floor. The posterior fibres (ischio-coccygeus) tend to open the anus and draw it over the advancing fæcal mass, whilst at the same time they make rigid the posterior part of the muscular floor. This rigidity anchors the rectum, not only because the levator fibres have a direct attachment to the bowel, but because the lateral ligaments of the rectum are attached to the fascia covering the upper surface of the levators. Thus the normal act of defæcation is accomplished. Now let us consider what occurs when the main factors in defæcation are weakened or inoperative.

Importance of Douglas's Pouch.

It is a fact that all operations involving obliteration of Douglas's pouch are followed by obstinate constipation. The radical abdominal operation for cancer of the cervix is the best example of this. It is also true that all conditions which, by adhesions, inflammatory exudate, tumour formation, or displacement, cause the utero-rectal pouch to disappear, are similarly accompanied by constipation, always providing that the condition does not at the same time produce actual irritation of the bowel. It has frequently been stated that the presence of tumours or the retroflexed body of the uterus in Douglas's pouch causes constipation by direct pressure on the bowel wall. If the tumour or uterine body be big enough, direct obstruction in greater or less degree does occur, but we believe that the main reason for the constipation which characterises these cases is that the pneumatic wedge of Douglas's pouch has ceased to exist, owing to the filling up of the space by the tumour or uterus, as the case may be. What happens is well seen if, in the course of an abdominal operation on a patient whose uterus is lying back in Douglas's pouch, the patient begins to strain. The intestinal coils are then thrust forward in front of the uterus, entirely obscuring it, whilst the irritable surgeon, vainly endeavouring to dam them back, damns the anæsthetist instead.

Hence the loss of the pneumatic wedge of Douglas's pouch produces a form of constipation in which there is difficulty in expelling the fæces from the rectum unless the deficient expressive force is made up for by the increased peristalsis of the bowel wall and greater fluidity of the motions, to obtain which the patient habitually employs aperients. When the retroverted uterus is large it actually acts like a ball-valve, pushing upon and actually hampering the bowel behind it, and the same is true of tumours closely fitting the utero-rectal space. In this class of case primary dilatation of the pelvic colon is produced, with results which we will consider presently.

We might notice here an instructive case of this variety of abnormality; the patient consulted one of us early in the year. She was unmarried, aged 33, and gave a history of loose stools for a period of over three years, at times the actions amounting to urgent diarrhœa, with a previous history of marked constipation. The condition was always worse at the time of the periods. Menstruation was regular, but was always associated with pain the first day. X rays, bacterial and other examinations failed to reveal any abnormality except a markedly retroflexed and enlarged uterus. The abdomen was opened by the other of us, a careful examination was made, but nothing further was found. The round ligaments were shortened. She has been seen recently, the bowels are acting regularly every day, the general condition is vastly improved and her weight is steadily going up.

Production of Cystocele and Rectocele.

Now let us consider some further effects of a weakened pelvic floor. In women whose muscular pelvic floor has been stretched by childbirth it is the anterior part of that floor (the pubo-coccygeal segment) which is chiefly weakened, so that the defective levators cannot properly close the pelvic outlet in front, a gap remaining where the much enlarged vagina passes between them. It is well recognised that the degree of dropping of the anterior and posterior walls respectively is unequal, one or the other being chiefly or solely affected. We suggest that the inequality can be, in part at least, explained by the position of the uterus, the tendency to cystocele being greater when the uterus is retroflexed and the tendency to rectocele greater when the uterus is anteverted. In cases of retroversion the altered direction of the pneumatic wedge by the body of the uterus filling Douglas's pouch forces down the bladder and the ledge on which it rests. This ledge is formed by the cardinal vaginal ligaments (Mackendrodt's ligaments) on either side, with the anterior vaginal wall and pubo-cervical muscle sheet in the centre. On the other hand, with the uterus anteverted the pressure is directed on to the posterior part of the floor (the ischio-coccygeal segment) to which the lower end of the rectum is attached, and as this, as a rule, escapes injury, every act of straining pushes the rectum downwards and forwards in the direction of least resistance, and the outcome is a rectocele. If the posterior part of the pelvic floor were more weakened than the anterior part, the rectum would then be pushed straight downwards instead of downwards and forwards, and this in fact is what happens in those cases in which the rectum prolapses through the anus.

An interesting case of this type was seen over a year ago. The patient came to consult one of us on account of prolapse of the rectum. Pelvic examination showed a marked dropping of the pelvic floor. Anterior and posterior colporrhaphy was performed, the uterus was then ventrofixed and the front of the rectum stitched to the posterior wall of the uterus. Since that time there has been no return of the prolapse, and the patient's general condition is entirely satisfactory.

The downward and forward movement that produces a rectocele drags on and loosens the attachment of the rectum to the sacrum and stretches the lateral rectal ligaments, and this movement, carried out against the resistance of the attachments named, presently permanently stretches and thins the wall of the bowel itself, so that it becomes functionally weaker. That the bulge of a rectocele is due to the actual descent of the bowel, and not to flatus or fæces pressed into the primarily thinned and weakened viscus by the act of straining, can be demonstrated by passing a rubber tube into the rectum and then making the patient strain down. It will be found that the size of the rectocele capable of being protruded is not lessened by the presence of the tube, though a free way exists for the escape of fæces or flatus. Descent of the rectum is often accompanied by an elongation downwards of Douglas's pouch, but a moment's consideration shows that this will not make up for the rectal deficiency, for the pneumatic wedge presses forward towards the gap between the levators, and not downwards and backwards as it should do.

The bulged, elongated and thinned condition of e rectum thus produced results in a form of conipation where, though solid fæces may be driven y peristalsis into the rectum, they are unable to be pressed from the anus with any ordinary exercise force, because the resultant of pressure is in the rong direction, and because the bowel and fæces scend together as the patient strains. Patients uffering from this disability complain they have st their expressive power, and they resort to the abitual use of aperients which, by increasing perialsis and fluidising the fæces, temporarily at all vents abrogates the difficulty. The pathological rocess, however, is a progressive one, the laxity of e parts increasing with every effort made, and the istended and thinned condition of the bowel tending extend upwards until the pelvic colon and, later n, the rest of the large bowel may be dilated. It is ossible that we have here a cause for diverticulitis, much commoner in women than in men.

In a considerable portion of these women the terus is retroverted and low in the pelvis in addition, ith the results already described—namely, that e pressure of the intestinal coils when straining is iverted forwards into the utero-vesical space and he pneumatic wedge of Douglas's pouch is lost. hus the difficulty in emptying the lower bowel is creased, and where the uterus is large enough to ct like a ball-valve, hampering the bowel behind it, xtension to the pelvic colon of the lax condition lready affecting the rectum is much assisted, and a hinned and dilated pelvic colon, sooner or later, is ertain to result.

Permanent dilatation of any portion of gut having mesentery necessitates permanent increase in size f the mesentery, not only as measured along the esenteric edge, but as measured from its root to s edge. In the case of the pelvic colon this elongaion is accentuated if the uterus is retroverted, on ccount of the fact that a large free space becomes vailable in front of the uterus, into which the coil f gut prolapses, and the mesenteric "drag" thus roduced is continually tending to accentuate the eformity. In this class of patient, too, the abdoinal wall is usually lax as well, and there is general nteroptosis. So that all the conditions for intestinal tasis are present. In such patients a vicious circle xists, the primary defect in the pelvis being accenuated by the ill-health and tissue-weakness produced y the stasis originating from the pelvic deformity. ike other vicious circles, it is often difficult to letermine the starting-point of the cycle, and in hese cases, unless a vaginal examination be made, t will probably be overlooked.

Clinical Features of Stasis of Pelvic Origin.

At the outset patients may be divided into two groups: (1) those who frankly complain of pain or liscomfort in the pelvis (these invariably consult he gynæcologist); and (2) a much larger class, those whose symptoms do not at first suggest anything wrong in that region, and who directly consult a physician. We will discuss the second of these two groups, for professional opinion up to now has not ssociated the symptoms with pelvic abnormalities. Most of these patients complain of obstinate contipation, and they usually describe the condition as ne in which they have no longer the muscle-power necessary to expel the stool. Others complain of "feeling so weak," that they are all right so long as they are lying down, but that they tire on slight exertion and are disinclined to make any prolonged effort. An inquiry may elicit that their disability dates from a confinement, previous to which they were normally active and strong. They say that they "don't feel the same as they used to do," and in fact they *have* been physically altered by the labour. They are as a house whose foundations have subsided, the very basis of the support of the viscera having yielded. Patients of this sort, with a total absence of localising symptoms, are commonly treated by tonics, rest, general massage and so forth, the underlying cause of the complaint of general weakness being entirely overlooked because nothing directly points to the genital organs. More commonly, however, the patient has grown so accustomed to inactivity in her bowels that this is not her chief complaint on consulting a physician. She even conveys to the physician by her answers that nothing that he can suggest will relieve that except the taking of aperients, a matter in which she is a greater expert than he is, and that it is merely the penalty of having children. Rather she seeks aid for indigestion, or even heart disease.

Complaint of "Heart Disease."

It may come as a surprise to the gynæcologist that he may be of assistance in a case of heart disease. One must explain at once that when a patient consults a physician stating she has heart disease it is an extremely uncommon thing to find any organic disease. Usually some type of arrthymia is found, and this, from the sensations associated with it, has suggested the diagnosis of heart disease to the uninitiated. A commonly accepted cause for this condition is flatulent distension of the stomach, but a distended splenic flexure of the colon may produce the same result. Now we have already seen that this may be part of the disorganisation produced by a weakened pelvic floor, and in the repair of this anatomical derangement the gynæcological surgeon can relieve the patient of her cardiac symptoms.

A case of this type consulted one of us some years ago. She came complaining of "heart disease," palpitation on the least exertion, associated with a certain amount of dyspnœa. She was a woman of 42, and had had four children. Examination revealed a dilated splenic flexure and descending colon. An inquiry elicited the fact that she had lost the muscular effort to evacuate the stools, and that the bowels were not moved without a strong purgative. Vaginal examination showed a great laxity of the pelvic floor, with the uterus anteverted. An operation was advised for the repair of the vagina and perineum and this was done. She has been seen again recently, and her history since the operation has been one of a normally functioning heart. This type of "heart disease," due to pelvic derangement, is not at all uncommon, and unless one is on the look-out for it, it can be easily missed.

Complaint of "Indigestion."

It is more usual, however, for the patient to complain simply of indigestion, due to a condition of flatulent distension of the abdomen, much worse after food. The stasis we have described is accompanied by dilatation of the colon with a consequent partial loss of peristalsis, and it is to this that most of the symptoms complained of are directly due. Again, stasis without doubt produces an alteration in the flora of the intestinal tract, both in quality and quantity, and this, together with the thinned and altered condition of the bowel, leads to toxic absorption, and in some cases to bacterial transmission. We do not propose to spend time discussing the effects of absorption or transmission, but would point out that the indigestion, headaches, and general ill-being which singly or in conjunction are complained of by these patients at first sight bear no relation to the genital organs, and yet may be directly responsible.

We believe that the findings of those who have written on stasis are not the only explanations for its existence, and that when a woman consults a doctor for symptoms apparently due to stasis, a vaginal examination should be made before the already accepted causes are held responsible for the condition. Headaches, general debility, indigestion, and so forth are too often treated as entities by the physician, but we maintain that in many female patients they are merely signs, and that the original cause is displacement of the genital organs and pelvic floor, and that, until this is corrected, complete and permanent cure of the symptoms will not be achieved.

Patients of the type we have been describing invariably consult a physician and not a gynæcologist, and unless the former proposes to make a vaginal examination, and is willing to make liaison with the gynæcologist, the patient is unlikely to be benefited to any great extent.

We have thus seen that a weakened pelvic floor may be held accountable for, or may result in, intestinal stasis, dilatation of the bowel, possibly diverticulitis, and general toxæmia, which latter is so often treated as neurasthenia without the origin of the condition having been discovered. Further, patients suffering from cystocele do not primarily consult a physician, and yet this disorder may cause conditions with which it is the duty of the physician to deal. It may, if at all marked, lead to partial retention of urine, as the patient is unable with the act of micturition completely to empty the bladder; these patients, in order to prevent a too early return of the desire to micturate, press during micturition the anterior wall of the vagina upwards with the finger, and so accomplish a complete evacuation of the bladder. Thus a condition of partial retention really exists very much like what is found in the male suffering from an enlarged prostate. It is well recognised how easily this urine in the male may become infected, and in a similar way, more easily owing to the shortness of the urethra, infections may arise in the bladder of patients suffering from cystocele.

The gross infections causing acute cystitis are easily recognised, as the patient seeks the aid of the physician for this condition. But in many the condition is not acute and causes no local symptoms, but gives rise to disorders elsewhere. The clinical aspects vary according to the infecting organism. The chronic infections with *Bacillus coli*, the typhoid group and pyocyaneus, may cause no frequency of micturition or pain to the patient, but may be responsible for chronic ill-health, debility, and a general feeling of malaise. The same symptoms may be directly due to a chronic streptococcal infection, again without localising symptoms, but in addition there may be symptoms of affections in joints and muscles.[2]

Undoubtedly these infections may be conveyed to the bladder by the urethra, and as this is so, an examination should be made of the vagina, as vaginal discharges are only too commonly the cause. These may come from a torn cervix. Cervicitis may give rise, in itself, to a marked toxæmia, and it has been in our experience to find arthritis arising from this condition. These toxic conditions usually clear up with local treatment to the affected part, and in the cases of arthritis it may be necessary to repair the injured cervix, and in addition we have found vaccines very helpful.

A case illustrating the importance of a complete pelvic examination, and carrying with it a salutary lesson, might usefully be inserted here. A very advanced case of arthritis consulted one of us a year ago. Both knee-joints were seriously affected, and the small joints of the hand showed a considerable amount of deformity. When seen the patient had already had all her teeth out, and her tonsils had been removed and the intestinal flora investigated, but so far she had obtained no relief. Vaginal examination showed a fairly marked cystocele and a torn cervix. No vaginal discharge was detected at this examination. A catheter examination was taken, and the urine showed a pure streptococcal growth. The patient underwent a course of vaccine treatment with this organism over a period of about four months with very satisfactory results. It was then discontinued, but two months later the symptoms recurred, when she came to consult one of us again. This time a vaginal examination showed a heavy discharge coming from the cervix. On inquiry it was elicited that the recurrence of the symptoms synchronised with the appearance of this discharge. A culture was taken from it and also from the urine, and in both a streptococcal infection was found. A fresh vaccine was prepared, and this is giving eminently satisfactory results

In this case there is little doubt that the bladde infection was only secondary to the cervical, and had the latter been properly investigated the patient would have been saved a great deal of suffering.

Other Gynæcological Conditions.

Chronic infections of the tubes cause very marked symptoms of toxæmia, and again arthritis may have its origin here, particularly when the infection i gonococcal. Ovarian troubles do not give ris commonly to general conditions outside the pelvis and when they do the local trouble is the condition for which the patient asks for relief, but small cysts fibromata, or malignant growths may give rise t symptoms from pressure, and in the early days o these conditions the pressure symptoms are frequentl the only thing of which the patient complains During the last few years we have seen several case of distressing sciatica in young unmarried girls. I none of these had a vaginal examination been made and so an impacted dermoid cyst had, in each case escaped observation. On removal of this tumou all signs of sciatica disappeared. This cannot bu strengthen our claim that a pelvic examination i necessary to complete one's investigations, whethe the patient be a virgin or a married woman.

Infections of the eye may even come within th sphere of the gynæcologist, and it has been ou privilege to see a case of neuro-retinitis cured an another of choroiditis in which the condition wa completely arrested by dealing with the site o infection in the pelvis. One case was sent to consul one of us by Mr. Ernest Clarke, on account of sever attacks of pain in the head which occurred five o six times a day, and were associated with partia blindness. He reported it as a case of neuro-retinitis with hæmorrhages. Every site for a possible infectio was explored, and finally a catheter specimen of th urine was examined as a cystocele was present. Thi was found to contain pus cells and epithelial cells mostly from the renal pelvis, and a fairly heav growth of streptococci. A vaccine was used over period of nearly five months, and in the end the retin became normal, and she recovered her sight completely. The other case, a patient of Dr. A. M. Elliot's was one of choroiditis, which had already destroyed the sight of one eye, associated with a severe cervica tear with a purulent streptococcal discharge. A tota hysterectomy was performed and the result was complete arrest of the condition, and up till this tim there has been no return.

Before closing let us revert again to intestina stasis. A perfectly legitimate query may here b interposed—namely, how our conclusions have bee arrived at. The answer is as follows. One of u (McC.), as a result of his experience of cases c chronic constipation and intestinal stasis, had becom aware of the existence of a distinct class of patien in whom the most exhaustive examination revealed nothing except deformity of the genital organs and pelvic floor. Careful consideration of these cases led him tentatively to the conclusions just set forth, and determining to put it to the test of operative intervention, he discussed the matter with the other o us (V. B.), whom he found had formed certain definit views which bore on the subject. Of these th importance of Douglas's pouch and the muscula pelvic floor in the mechanism of defæcation, and th physical results that follow if they become inoperative have already been mentioned. He further had noted that the operation of shortening the round ligaments when performed so that the organ is not merel anteverted but pulled high up as well, effected a unlooked-for improvement in symptoms due t enteroptosis when that condition complicated retroversion, and he had ascribed that improvement to th uterus and broad ligaments forming a firm platform so to speak, on which the intestines could rest.

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[2] It should be noted that some of the most active organisms causing general symptoms may not appear on the plate even up to ten days' incubation, and it is wise to continue the incubation of tubes that appear sterile at the end of the second day.

The physician's views were therefore put to the test, and in a series of cases the pelvic deformity was repaired with the definite object of curing the stasis. The operations performed differed in different cases according to the nature and extent of the deformity. If the uterus was retroverted, the round ligaments were shortened by a method which virtually suspends the uterus on either side at its junction with the round ligament, but which leaves the corpus itself free. Laxity of the pelvic floor was dealt with by a colporrhaphy which included very firm and thorough suture of the levatores.

The result of these operations has been so happy as to convince us that the conclusions theoretically reached are right. The most satisfactory results of all have been in women whose pelvic floor had been thoroughly deranged, but cases of simple backward displacement of the uterus have also given markedly good results. The sense of well-being after these operations have been safely accomplished is the outstanding feature in the records of all the patients; in fact, there is no class of operation in surgery that we know of where the patients themselves are so grateful. It is because of this that we determined to bring this type of case before the section. The subject up to now has scarcely been touched upon, the only writing bearing on it that we know of being contained in Arthur Hurst's book on constipation, in which weakness of the pelvic floor is specifically referred to as a cause of constipation. We do not claim that the last word is said on the subject, nor that our explanations or conclusions may not be modified by future experience and observation, but we do believe that in the main our contention is right.

In conclusion, we trust we have shown that general conditions may be dependent on pathological lesions in the pelvic organs and have proved the necessity of a pelvic examination to be a part of the general examination made by the physician, and we trust we have thus succeeded in bringing more closely together those great fields of thought—namely, general medicine and gynæcology.

UNSUSPECTED NASAL SINUS DISEASE.

BY T. B. JOBSON, M.D., B.CH. DUB., D.P.H. LOND.,

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NASAL sinus disease is much more common than is generally recognised, the reason being that the nose does not receive the attention it deserves. It is quite common to see patients suffering from sinus suppuration whose symptoms date back 5, 10, or even 20 years. Their symptoms and signs of nasal disease are often slight. Probably the patient has had treatment on one or more occasions; a nasal wash has been prescribed and used without much improvement in his condition, and he comes to regard the latter as "chronic" and resigns himself to what he thinks is the inevitable.

Capacity of the Nasal Sinuses.

Although the signs of a chronic sinusitis may be slight, the condition is very serious. The size of the nasal sinuses is apt to be forgotten among the mass of anatomical knowledge the student has to learn. A brief outline of their measurements may help in the appreciation of their importance.

—	Dimensions in centimetres.		
	Frontal.	Maxillary.	Sphenoidal.
Antero-posterior ..	2·1	3·8	2·1
Supero-inferior ..	3·4	3·8	2·2
Lateral	2·3	2·3	1·8

The frontals and sphenoidals vary very greatly in size. One may be immensely larger than the other, much bigger or much smaller than the average quoted. The cubic content as given by Loeb[1] shows this very strikingly.

—	Content in cubic centimetres.	
	Greatest.	Least.
Sphenoid	11·8	0·6
Frontal	8·2	0·9
Maxillary	28·4	4·6

The ethmoids, of course, are much smaller in size but make up for this in their greater number. The maxillary antra are the most constant. Their shape and dimensions may be well compared to a Brazil nut of moderate size. With this idea of the capacity of the nasal sinuses one can visualise what happens when one or more of these cavities are infected. They are constantly secreting pus, a good deal of which is swallowed. The toxins are absorbed both by the mucosa of the sinus and of the intestinal tract; a chronic toxæmia is produced, which may show itself in many ways—e.g., headaches, arthritis, or nephritis. The pus swallowed may set up infection at any point in the intestinal canal, producing tonsillitis, gastritis, appendicitis, colitis, &c. The toxins may produce effects further afield, such as optic neuritis, arteriosclerosis, arthritis, &c. Acute otitis and tonsillitis are obvious conditions that may arise from pus passing down the posterior nares.

The recognition of a possible focus in nasal sinuses is of great practical importance. Treatment of the secondary conditions produced by sinus suppuration will produce little benefit while the toxic source is still present. Surgical treatment of the sinuses gives excellent results. In cases of fairly recent antral disease puncture and lavage will often effect a cure. Even in long-standing cases and when more than one sinus is involved the appropriate radical drainage operation gives most satisfactory results. Early diagnosis is thus of very great importance.

The following series of cases shows how the signs of sinus disease may be masked or referred to a remote part of the body.

The Onset of Acute Sinusitis.

Visualise for a moment the onset of an acute sinusitis following coryza. The normal mucous membrane of the nose is sterile. The skin and vibrissæ of the vestibule of the nose are septic. Very interesting experiments to prove this were done some years ago by StClair Thomson and Hewlett.[2] All day long the nasal mucosa of the town-dweller is bombarded by bacilli of various kinds, which impinge on the moist surface of the septum and turbinal bones. Here they have to contend with the defensive mechanism of the nose—the antiseptic action of the nasal secretion, the excellent blood-supply of the nose, and the mechanical action of the ciliated epithelium. Usually the defence succeeds. Occasionally, however, owing to the number or virulence of the attacking organisms or to a lack of vigour in the defending mechanism, the attack gains a foothold; a resulting rhinitis spreads through the ostia connecting the nose with the various sinuses. The inflamed mucosa secretes muco-pus, which overflows into the nose. The ostia become narrowed through the swelling of the covering mucous membrane. This tends to partial damming up of the secretions, causing acute headache, pyrexia, and toxæmia. As a rule these symptoms pass off in a few days with suitable treatment, and the sinusitis clears up. Occasionally, however, perhaps in 5 per cent. of cases, the invading organisms gain a permanent stance. A subacute or chronic sinusitis is the result.

A nasal infection secondary to influenza, scarlet fever, or any of the infective diseases may cause a sinusitis in a somewhat similar way. A distinct class of cases are those caused by dental sepsis. These, of course, are, in the first place at any rate, limited to the antra and comprise about 20 per cent. of chronic antral disease. The sinusitis having passed through the acute stage to the chronic may show little or no signs of its presence. But there it remains as a septic focus ready to flare on provocation, and a source of infection to other parts of the body. To realise the possibility of its existence will elucidate many obscure conditions.

Illustrative Cases.

The following cases are examples of illness in which there was a sinusitis present, the existence of which would not have been detected unless routine examination had been made.

Acute Otitis Media.—A single woman, aged 40, came to me on Dec. 12th, 1922, with a history of acute otitis with pain and discharge from right ear for one week. No previous attacks. The membrane showed the typical red, swollen appearance of acute otitis, and a perforation in lower half. In spite of a month's treatment and myringotomy the ear still discharged profusely. No obvious source of sepsis in mouth or throat. She gave a history of catching frequent colds—a history that often points to sinus infection. On exploring the antra I found the right full of muco-pus. After four irrigations the nose cleared up completely. The ear improved at the same time and was quite dry on Jan. 18th, 1923.

In this case it is quite probable that the pus from the antrum was the original cause of the otitis. The pus passing down the posterior nares might easily infect the Eustachian tube. At all events the septic antrum aggravated the otitis, which resisted all treatment until the septic focus in the nose was eliminated.

One frequently sees in children an otorrhœa resisting all treatment while septic adenoids are present. After removal of the adenoids the otorrhœa clears up. A septic sinus can act in the same way. Although not so common, it should not be forgotten as a possible cause.

Bad Breadth.—A girl, aged 19, came to the Guildford Hospital on Nov. 2nd, 1922. Her only symptom was "bad breath." She had no headaches or pain, complained of no nasal discharge, and in fact felt perfectly well. She was a domestic servant; the fœtor from her breath was a great handicap to her in her work, and had been a source of distress to her in social life for over three years. Puncture of the left antrum yielded creamy fœtid pus. Treatment by irrigation failed to cure, so I did a radical Caldwell-Luc operation. After a week she was practically well, and has had no trace of "bad breath" since. Previous to coming to hospital this girl had been treated for "dry" catarrh of the nose. Probably the case had been diagnosed as ozæna. A glance at the interior of the nose should have negatived this diagnosis. Also the girl was acutely conscious of her own bad breath. The fœtor was both subjective and objective. In ozæna it is objective only.

Cases of "bad breath" are frequently put down to bad teeth, "disordered stomach," constipation, &c. A septic mouth is, indeed, frequently the cause, but where the mouth is clean the nose is probably the source. It is exceptional to find bad breath as the only symptom of sinus disease. It is usually found combined with discharge, headache, and ill-health.

Perpetual Colds.—A man, aged 59, seen Jan. 2nd, 1923, complained of a "perpetual cold" affecting both sides of his nose. Symptoms dated back five years but could not be traced to any illness. No headache or tenderness; sight and sense of smell good; no fœtor detected from the discharge, although he volunteered that instead of handkerchiefs he used old pieces of linen which could be burned. Anterior rhinoscopy showed a typical picture of chronic sinusitis. On the right side a mucous polypus blocked the view; on the left side the anterior end of the middle turbinal was outlined in pus, the "creamy crescent" I like to call it, which tells of pus in the anterior group of nasal sinuses. Proof puncture on both sides yielded fœtid creamy pus which mixed readily with the irrigating fluid. This miscible pus always indicates old-standing disease. The probability is that such a case will not clear up with puncture combined with injection of antiseptic. The case required a radical drainage operation—a double Caldwell-Luc operation with removal of the ethmoid cells on the right side.

Vaccines are quite useless in these chronic cases. The mucous membrane is degenerated. The blood of the vaccinated patient, although it may have much added antitoxin and increased antibodies, does not reach the organisms in the septic pool and does not circulate efficiently in the degenerated mucosa. In the acute and subacute cases, however, vaccine is no doubt of help in treatment, although it is often difficult to judge on this point, as the patient is rapidly getting better by the time the vaccine is ready for use.

Head Injury.—A carman, aged 20, sent to Guildford Hospital on Dec. 13th, 1922, as a case of head injury, possibly with cerebral hæmorrhage. A week previous to admission the door of his van had struck him on the left fronto-parietal region. He was dazed by the blow, but resumed work next day, although his head ached and was tender to touch. Two days after the accident his nose bled; headache became very severe—intense boring pain round left eye prevented sleep. On admission he was mentally quite clear; his chief complaint was of the headache, and he was tender over the left malar and frontal regions. Temp. 99° to 100° F. Mr. Milligan, the house surgeon, noticed a nasal discharge on left side. Mr. H. B. Butler, the surgeon in charge of the case, asked me to see the patient. I found an acute purulent sinusitis on left side with typical creamy crescent. Turbinal bones showed extreme engorgement, completely blocking the nose on that side. Puncture of left antrum yielded creamy pus. After lavage pus could still be traced coming down from ethmoidal area, indicating infection of anterior ethmoidal cells. X ray examination showed left antrum and left ethmoid opaque—but frontal sinuses clear. Pus from antrum yielded staphylococcus from which a vaccine was made and given. With treatment he gradually improved; it took over a month to get the nose free from pus. In fact, I had put him down for a drainage operation when he showed a sudden improvement and the sinuses cleared up completely. His symptoms, headache, tenderness, and fever had disappeared after ten days of treatment. On questioning him it was found that he had had a "cold" for a month previous to his head injury. Whether the blow had any exciting influence on the sinusitis it is hard to say. Probably not.

The moral is that here we have a case sent in by a most competent doctor as a possible cerebral hæmorrhage. This case might easily have been trephined had not the possibility of coexisting sinus infection occurred to the surgeon in charge.

Duodenal Ulcer.—A woman, aged 39, admitted to Royal Surrey County Hospital, Guildford, for recurring gastroduodenal symptoms for some years, suggesting a duodenal ulcer. She was referred to me for preliminary treatment on Nov. 9th, 1922, when I enucleated the tonsils. On seeing her again I found pus in the left nostril and got a history of nasal discharge for over a year, and frontal headaches "as if there was something drawing her eyes." Exploration of the left antrum yielded creamy pus mixing with the irrigating fluid. On Feb. 16th, 1923, a laparotomy was done by Mr. E. W. Sheaf, who found no ulcer in stomach or duodenum.

Sir Berkeley Moynihan, in his Hunterian lecture delivered on Jan. 29th, 1923, on Some Problems of Gastric and Duodenal Ulcers, says: "Before treatment begins a general survey of the patient must be made, especially in reference to the existence of sources of infection in the mouth and the accessory sinuses." The above case well illustrates this point. If the infection sources can be eliminated early enough the gastritis will clear up before the ulcerative stage is reached.

Pyrexia.—A boy, aged 9, had an attack of "influenza," with some tonsillitis and nasal catarrh. These symptoms cleared up, but the temperature persisted. For three weeks it kept up to 103°, 104°, and even 105° F. in the evening. No cause whatever could be found for the fever. He felt, slept and ate well; he was seen by four doctors and carefully examined, and the doctor in charge finally asked me to examine the sinuses. Both antra contained pus. A double drainage operation was done. The temperature fell by lysis to normal in a few days. Another interesting point about this case is that the boy had developed albuminuria. This also disappeared three days after the operation. This case I have published in a previous paper,[4] but I mention it again as being unique in my experience.

One of the commonest symptoms of chronic sinusitis is headache. This is most commonly frontal. In acute maxillary, ethmoidal, and frontal cases it is a brow ache. In chronic cases the pain is higher. Occipita headache points more to sphenoidal sinus. The headache is usually matutinal; the patient wakes with a dull pain which lasts for some hours, until by the help of the upright position, drainage and other factors such as blowing or washing out the nose, the pent-up secretions are partly evacuated, thus relieving tension. Headache may be the *only* symptom of chronic sinusitis, as the following case and many others show.

Headache.—A girl, aged 17, had suffered for seven years from headaches of supra-orbital type generally on the left side. No other symptom than almost continuous headache. Transillumination showed dullness on left antral region. Lavage of left antrum discovered an empyema of fœtid pus. After the second lavage headaches entirely ceased. She is still under treatment as the antrum is not yet free from pus. A drainage operation may be required.

The contents of the antrum may be a clear straw-coloured sterile fluid which gushes out when the trocar is introduced. This retention of fluid is due to the antral ostium being obstructed by an enlarged middle turbinal or a deflected septum or other anatomical defect. Treatment of these cases resolves itself into restoring the patency of the ostium by rectifying the anatomical defect.

It is not uncommon to meet cases in which the operation for removal of adenoids has been performed on one or more occasions, and yet in spite of this treatment the patient still has a "wet nose." On palpating the posterior nasus one feels a soft, raised patch in the adenoid area. One is apt to jump to the conclusion that the operation has not been thoroughly done. But this conclusion may not be correct. The pad one feels may be a layer of granulation tissue kept in a septic condition by the discharge from an infected sinus. The following case illustrates this point:—

Adenoids.—A boy, aged 10½, had had "nasal catarrh" for some years, got easily tired, caught frequent colds, and sometimes lost his voice. Tonsils and adenoids efficiently removed 18 months previously; he seemed better for some months but then gradually the above-mentioned symptoms returned. Lavage of right antrum yielded a mass of muco-pus. Immediate improvement in symptoms ensued.

To ignore the possibility of a sinus infection in such a case may bring the operation for removal of adenoids into unreserved disrepute, and may also withhold urgently needed treatment for the patient. The similarity between the symptoms of sinusitis in children and those of adenoid hypertrophy was pointed out by Cleminson.[5]

Neuritis.—A married woman came to see me on Nov. 20th, 1922, with a history of "neuritis" in various parts of the body and frequent headaches. She diagnosed her own case quite correctly after reading an article in The Lancet[4] on sinus disease, although she had no obvious signs—in fact, her anterior nares showed no sign of pus or œdema. Her transillumination was clear, and only her own persistence induced me to proceed further and wash out her antra. Her antrum proved to be full of muco-pus. The condition cleared up rapidly; and so far the patient has had no headaches and very little "neuritis."

Arthritis.—A girl, aged 17, referred to me by Dr. J. Cohen, of Aldershot, gave a history of pain in the right knee-joint of three months' standing. No evident swelling but joint grated on movement. Nasal discharge for over a year. No subjective or objective fœtor, but her mother noticed a "sickly" odour from her handkerchiefs. Nose showed no visible pus, but transillumination was dark on right, and right antrum yielded muco-pus on proof puncture. After six washings combined with injection of argyrol her antrum was free from discharge. Her knee gradually improved concurrently with the treatment of her sinus and got quite well within a month.

I do not wish to give the impression that infection of the nasal sinuses is the only septic focus in the field of observation. It is only one of many. But it is apt to be forgotten, as I think the cases I have mentioned prove. It is a very important condition and fairly common, and the only safeguard against its being overlooked is routine examination. This should be done in all cases which may possibly be due to sinus disease. This paper is a plea for routine examination of the nasal sinuses.

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Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOLOGY.

The first meeting of the section for the session was held on Nov. 3rd, under the presidency of Mr. **Sydney Scott**.

Changes in the Inner Ear in a Deaf Dog.

Mr. J. S. **Fraser** (Edinburgh) gave an interesting epidiascopic demonstration of the changes he had discovered in the inner ear of a dog which had been deaf from birth. He said they differed from those seen in dancing mice, which had also a deficient power of balancing. In the latter there were changes in the neuro-epithelium of the cochlea and the saccule. Alexander had held that an important cause of the changes in the cochlea was a deficiency in the vascular supply. Further study was required to discover the relationship of pigmentation to congenital deafness. The lesion in cases of congenital deafness was evidently in the region of the stria vascularis.

The **President** said the disease in these cases was apparently limited to the membranous labyrinth, and it was probably associated with failure of secretion of the stria vascularis. His own view had been that the stria vascularis corresponded to the analogue of the choroid plexus. He congratulated Mr. Fraser on the beauty of his slides.—Dr. **Albert Gray** (Glasgow) said he had heard from veterinary surgeons that deafness was much more common in dogs than in horses or cats. He had made sections from the ear of a deaf albino cat, and they were very similar to those shown by Mr. Fraser now from the dog. He thought the lesion was confined to the ductus cochlearis. The organ of Corti was flattened, and the tectorial membrane was rolled over it. He referred to the greater complexity of the human auditory apparatus in comparison with that of animals, and the difficulty of applying Mendelian principles to the human subject.—Prof. F. **Hobday**, F.R.C.V.S., remarked on the frequency with which congenital deafness was met with in the bull terrier, and veterinarians deplored the fact that they were powerless to remedy it. He hoped the work would be continued, and he considered this a further illustration of the need for coöperation between the medical man and the veterinary surgeon.

Otoliths in Fishes.

Mr. G. **Allen Frost** gave an exhaustive demonstration, by means of lantern slides, on the otoliths found in a large number of varieties of fishes.

In the discussion which followed, most of the speakers expressed the view that fishes could not hear ordinary sounds, but were remarkably susceptible to slight vibratory impulses, not only communicated direct to the water, but even to the contiguous bank. The **President** thought future observations in this connexion would be directed to the functions subserved by the otoliths, especially in view of the new work done in Holland in relation to the saccule and utricle and the various tonic reflexes.

Exhibition of Cases.

Sir **James Dundas-Grant** showed a patient whose pulsating tinnitus was greatly relieved by digital compression of the vertebral arteries. He pointed out the diagnostic value of the method, for in congestive conditions—i.e., at the climacteric—the compression of these arteries checked the trouble.

Mr. **Arthur H. Cheatle** showed a woman, aged 34, who had lupus of the lobule of the ear. There was no ulceration, and the skin was smooth. No sign of lupus or tubercle could be found elsewhere. He had removed the tumour and nodule in one piece, and sutured the skin.

Mr. T. B. **Layton** exhibited a youth, aged 19, who had suffered from meningitis, from which he recovered without the performance of trans-labyrinthine drainage. He had had severe influenza ten months ago, and for years there had been chronic ear disease, with discharge. In hospital he was so ill that it was thought he could not survive an operation. However, diseased bone was removed over the posterior cranial fossa, and a foul sloughing dura was exposed. The wound was packed, its edges left open, and lumbar puncture was carried out. No organisms were present in the fluid after 72 hours culture.

Dr. **DAN MCKENZIE** showed a patient on whom the radical mastoid operation was done without grafting or meatal plastic, according to the method of Bárány—i.e., operation was performed on the bone in the usual manner, without interference with the membranous meatus. In this patient there was complete healing without contraction of the meatus.—Mr. **L. COLLEDGE** thought it a retrograde step to treat cases in this way, because of the liability of débris and discharge collecting behind the meatus. He quoted cases which supported his remarks.—Mr. **H. TILLEY** agreed with Mr. Colledge, and said the surgery of these cases must be based on the best which could be done for 95 per cent. of the cases, rather than on what might happen to 5 per cent.—Dr. **P. WATSON-WILLIAMS** said that sometimes by not interfering with the tympanic wall one might retain to the patient a useful degree of hearing, whereas by a more complete operation a good deal of the hearing power might be lost.

Dr. **MCKENZIE** also showed a patient, a woman aged 60, whose cholesteatoma with fibrous changes produced a close simulation of malignant disease. An old-standing discharge was followed by recent facial paralysis, a hard semicircular mass could be felt under the skin and extended down in front of the ear as far as the tragus. The fibrous mass contained fibromatous material and gland tissue, and examination revealed no trace of malignancy.

Dr. **A. R. FRIEL** showed two patients whose chronic suppurative otitis media he had successfully treated by ionisation. The first patient, 16 years of age, had had aural discharge for many years, and it had persisted in spite of the application of drops. He brought about destruction of the granulations on the posterior wall by zinc electrolysis and nitrate of silver, followed by zinc ionisation of the cavity from which pus had been aspirated. This caused the discharge to cease. He described the technique in detail. His other case gave a history of aural discharge on one side for four years. There was attico-mastoid disease with a fœtid discharge, and cholesteatoma with polypus and granulations in the tympanum. Much the same treatment was carried out as in the last case, and the ear had now been dry for several months.—Dr. **WILLIAM HILL** said that although at first he felt sceptical as to whether Le Duc's method was likely to benefit such cases as Dr. Friel showed, he had been agreeably surprised at the results that gentleman had secured.

Mr. **H. RICHARDS** showed a woman, aged 27, the subject of herpes auris on the concha and floor of external auditory meatus. She had transient otorrhœa 16 years ago. Spontaneous gradual improvement set in. He also showed a case of cerebral abscess as a sequel to an otitis media which had completely healed. The abscess (encapsuled) was found to be in the temporo-sphenoidal lobe. The recovery was uninterrupted.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on Oct. 25th, with Dr. **J. HILL ABRAM**, the President, in the chair, when Dr. **JOHN HAY** and Dr. **H. WALLACE JONES** contributed a note on

Dextrocardia.

Dr. Jones said that the term dextrocardia in its widest sense was applied to a heart beating in a more or less permanent manner in the right half of the thorax. The condition had been known from ancient times, but the modern application of X rays and electro-cardiographs had made the diagnosis one of comparative ease. He classified the varieties as follows:—Inversions: "Mirror image" of the heart. 1. Complete. 2. Incomplete—(*a*) transposition of viscera with heart in the normal position; (*b*) complete inversion of the thoracic organs, and a liver situated in the middle line; and (*c*) inversion of the heart only. Dextro-versions: Heart displaced to the right without inversion of the cavities. (*a*) Occurred during fœtal life; and (*b*) acquired since birth. He showed records of four cases—two cases of complete transposition with inversion of the main deflections in lead 1 of the electro-cardiograph and two cases of acquired dextrocardia, not due to any obvious cause, with normal electro-cardiograph records.

Dr. **T. W. WADSWORTH** read a note on a case of

Syringomyelia.

He said that the cord was obtained from a patient in the Walton institution, who died, aged 51, from a pontine hæmorrhage. There was an extensive gliosis of the central region of the cord extending from the upper cervical cord to the lumbar region. In the cervical and mid-dorsal regions there were large cavities near the central canal, not lined by ependyma. He had manifested symptoms of syringomyelia for over 20 years, and carried on his occupation as a labourer up to three years of the time of his death. The hands were claw-like, with many scars, due to old painless injuries and burns—some of the latter were recent; tactile sensation was almost normal, but there was loss of sensation to heat, cold, and pain, especially of the hand. There was well-marked scoliosis and spasticity of the legs; towards the end he became ataxic. No arthropathy, perforating ulcer, or nystagmus was present.

Dr. **A. C. RANSOME** read a paper on the treatment of

Late Neuro-syphilis and Disseminated Sclerosis.

He gave the results of his treatment of these two classes of organic nervous diseases in Manor Hill Neurological Hospital. Cases of tabes, tabo-paresis, and early G.P.I. were divided into two groups for treatment according to the condition of the cerebro-spinal fluid. Those with a high cell count, a tabo-paretic gold curve, an excess of globulin, and a positive W.R. were given intrathecal injection of re-enforced salvarsanised serum, while those with a luetic gold curve, a lower cell count, and globulin excess and positive W.R. were given neokharsivan or oxycyanide of mercury by intravenous injection. Both groups received the same after-treatment of mercury and pot. iod. by mouth. The clinical results of treatment agreed very closely with the effects on the condition of the cerebro-spinal fluid. In this the reduction of lymphocytes, of globulin, and the flattening out of the gold curve were very marked, and were accompanied by the cessation of pains and crises, by increased control of sphincters, and in some cases by ability to return to work. Slides were shown illustrating the condition of cases before treatment, after treatment, and after an interval of a year. Thirteen cases treated by intrathecal salvarsanised serum showed 8 improved, 3 no change, 1 worse, 1 transferred. Twenty-six cases treated by intravenous neokharsivan and oxycyanide of mercury showed 9 improved, 11 no change, 6 left hospital. Thus intrathecal treatment appeared to be more efficacious than intravenous, in spite of the fact that the former group were more advanced clinically and pathologically. Thirty-six cases of disseminated sclerosis were treated by intravenous injection of silver salvarsan on the assumption that the disease is caused by a specific spirochæte distinct from that causing syphilis. The results were 14 improved, 10 no change (including 5 only recently treated), 9 left hospital, 3 died of intercurrent disease. While allowing for errors of observation, possible remissions, for the concomitant effects of massage, exercises, healthy surroundings, &c., Dr. Ransome considered the result of this treatment as encouraging and worthy of further trial.

Dr. **DOUGLAS BIGLAND** thought that too much weight had been placed upon the colloid gold reaction, which was notoriously unreliable on occasions. This test was most useful when it agreed exactly with the other spinal fluid reactions. Good results might be obtained from intrathecal therapy, but he had obtained just as good effects with drugs administered by the intravenous and oral route. He considered that when two methods of treatment give approximately equal results, the simpler, the less expensive, the less painful, and the more generally applicable one should be used in preference to the one not having these advantages. The effects of mercury, especially when administered by inunction, were little short of marvellous in certain forms of neuro-syphilis.

Dr. **BAKER YOUNG** stated that the advocates of intrathecal therapy claimed that advanced cases of neuro-syphilis could be benefited, and in some cases be enabled to return to work; in others the improvement would allow them to resume home life. Cases in which a paretic curve with the gold sol is persistent in spite of treatment were invariably fatal and particularly prone to suicide. Intrathecal therapy was indicated in early cases which showed an abnormal fluid. J. A. Fordyce had stated that at least 25 per cent. showed changes even after intensive treatment intravenously. If these cases were then treated intrathecally the fluid became normal, and the natural inference was that a potential tabetic or paretic finale had been avoided. Dr. Young congratulated Dr. Ransome on the excellent results of his cases.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

A MEETING was held on Oct. 19th, Dr. A. MAITLAND RAMSAY, the President, being in the chair.

Discussion on Pathology, Symptomatology, and Treatment of Disseminated Sclerosis.

Dr. **DOUGLAS ADAMS**, in an opening paper, briefly reviewed the literature of disseminated sclerosis, and referred more particularly to recent results obtained in an investigation which is being carried out in the pathological department of the University and Western Infirmary of Glasgow in collaboration with Drs. E. M. Dunlop, J. W. S. Blacklock, and J. A. A. W. McCluskie. In a considerable number of cases paralysis had been transmitted to rabbits by the injection of blood or spinal fluid from patients suffering from the disease, and had been passed from rabbit to rabbit both by direct inoculation and by passage through culture. Spirochætes were found in the organs of seven of the inoculated animals both by dark ground examination and by staining, though examination of the cultures employed yielded negative results. These results were regarded as confirming the view that the disease is infective in origin. Emphasis was laid on the necessity for early diagnosis, and in this connexion the value of the colloidal gold reaction was urged. The results of intensive anti-specific treatment of 50 cases were referred to. In many cases considerable clinical improvement had been noted, and this had coincided with a modification of the colloidal gold curve in a direction towards negative. In the majority of cases the subsequent absolute or relative freedom from relapses during a period of three years was striking. The investigation was being continued under a grant from the Medical Research Council.

Dr. **BLACKLOCK** described in more detail the various experiments performed, and said that when blood or spinal fluid from cases of disseminated sclerosis had been inoculated directly into rabbits, about one-third of the animals developed nervous symptoms. An emulsion of the central nervous system of these paralysed animals produced nervous symptoms in a proportion of cases on inoculation into other animals either directly or after passage through Noguchi's medium. No nervous symptoms had been noted in over 200 normal control animals kept under observation for periods varying from four months to over a year, nor had paralyses developed in animals inoculated with various protein substances. He considered it probable that a virus was present in the blood and cerebro-spinal fluid of these patients which was capable of existing in the central nervous system and of producing paralysis in a proportion of the animals inoculated. The pathological lesions that had been noted in the central nervous system of the inoculated animals were: (1) Cellular infiltration, chiefly under the ependyma of the ventricles. (2) Degeneration of nerve tracts—this latter had been observed only in one animal that had lived for over a year after the onset of paralysis. The other animals that had shown nervous symptoms had lived for too short a time after the onset of such symptoms to allow definite pathological changes to occur. (3) Petechial hæmorrhages. (4) Multiple lesions of the nature of softening.

Dr. **BROWNLOW RIDDELL** referred to the frequent occurrence of slight and transient eye symptoms in the early stages of the disease, and urged the importance of a critical interpretation of such symptoms in a case presenting no other apparent clinical feature. The surprisingly slight attention paid by the average patient to transient eye symptoms, with the speedy recovery therefrom, and the absence of any other sign or symptom, combined to present a clinical picture often under-estimated or attributed to a functional, hysterical, or digestive origin. Dr. Riddell then considered in detail various symptoms, including diplopia, acute retro-bulbar neuritis, nystagmus, and optic atrophy, and described a number of illustrative cases.

Prof. C. H. **BROWNING**, in commenting on the results of the experimental work, said that the small proportion of successful transmissions was not surprising in view of the insusceptibility of both man and animals to the disease. He emphasised the fact that the virus persisted in the culture media which had been inoculated with blood from cases and kept over long periods in the incubator, and was inclined to the opinion that the pathogenic agent was a living organism or the product thereof. He then referred to the value of the colloidal gold reaction as a means of early diagnosis and of controlling the results of treatment.

Prof. **ROBERT MUIR**, in referring to the pathological and histological changes in the disease, said that, while very definite, they yet presented certain peculiar characteristics. The essential features at an early stage were (*a*) a disappearance of the myelin sheaths, (*b*) a persistence of the axis cylinders, and (*c*) an absence of Wallerian degeneration. These changes occurred in patches which were often sharply cut off, as though by a knife, from the surrounding healthy tissues. The process was peculiar and quite unlike a true sclerosis. The colloidal gold reaction in the cerebro-spinal fluid he considered would mark a real advance if completely established, and would prove of great assistance in controlling treatment. Referring to the ætiology he was of the opinion that, while a great many facts supported the infective theory, the state of the experimental work was as yet too uncertain for complete proof—while hopeful, it was not conclusive.

BATH CLINICAL SOCIETY.

A MEETING was held recently with Dr. W. P. KENNEDY, the President, in the chair.

Dr. R. G. **GORDON** read a paper on the Difficult Child. He dealt with the types of difficult behaviour in children both in infancy and in later life. The importance of the attitude of the parent was emphasised. The causes of failure of integration of the personality leading to difficulty in adaptation to life were classified under three headings in relation to the proper functioning of the cortex: (1) Failure of development—mental deficiency; (2) disease of the cortex, specially congenital syphilis and epidemic encephalitis; (3) inherent lack of proportion in dispositions leading to psychological maladaptations. Illustrative cases were quoted.

Dr. R. **WATERHOUSE**, Mr. A. L. **FULLER**, and Mr. J. S. **LEVIS** showed specimens.

Reviews and Notices of Books.

THE MECHANISM AND PHYSIOLOGY OF SEX DETERMINATION.

By DR. RICHARD GOLDSCHMIDT. Translated by Prof. W. J. DAKIN. London: Methuen and Co. 1923. With 113 figures. Pp. 259. 21*s.*

SEX is an accident, the result of the immutable laws of chance. To the world at large it does not matter at all which individuals are male and which are female, so long as there are approximately the same number—or an equivalent functional number—of each. But it matters so much to the individual, or so he or she thinks, that the problem of sex determination has always been one of absorbing interest. This massive and scholarly book discusses the whole question on the basis of sex as a Mendelian character, and in it the author weaves together a fascinating account of cytology combined with experiment, pointing out very clearly how the two lines of research have dovetailed into one another. After an account of the normal behaviour of the sex-chromosomes, and a discussion of the intersexes in moths which he has himself studied to such good purpose, the author gives a clear summary of the main position.

> Every developing individual of a bisexual organism contains the substances whose action can call forth the one or the other sex. A particular mechanism, disclosed by Mendelian experiment and visible in the sex chromosomes, distributes these substances to the offspring in such a manner that half the offspring receive the substances in one proportion whilst the rest receive them in another, and so that either the male or the female substances are present in excess quantity. These substances act like enzymes—proportionally to their concentration. The quantitative difference of the substances in the two groups of individuals is automatically responsible for either the male or female enzyme completing the determining reaction first. This reaction is the production of specific hormones of sexual differentiation.

There is one pathological relation in which the author's conception that each factor is a dose which may diminish or be exhausted in the course of the individual's life is specially suggestive. A hen is female because its femaleness predominates, not because it has no maleness, and its femaleness may, as it were, wear out. It may then become an anatomical, and even a functional, cock. The magnificent studies of Miss Stye on the inheritance of cancer in mice (summarised in a convenient form by Prof. H. G. Wells in the *Journal of the American Medical Association*, vol. lxxxi. (1923), pp. 1017, 1103) show that the tendency to develop cancer behaves as a Mendelian recessive character. And the age-incidence of the disease suggests that we may here have another example of the quantitative efficacy in time of a heritable quality such as explains the changes of sex in fowls and moths.

The later chapters deal with various special problems—the inheritance of secondary characters, hermaphroditism, parthenogenesis, numerical sex ratios and sex determination in man. There is no recipe for getting a boy, and those who have no particular knowledge of the modern development of the subject will not find the book very easy reading. But it is worth some pretty stiff study.

PSYCHOLOGY.

The Psychology of Reasoning. By EUGENIO RIGNANO, Professor of Philosophy in the University of Pavia. Authorised translation by WINIFRED A. HOLL. London: Kegan Paul. 1923. Pp. 395. 14*s.*

PROF. RIGNANO's aim is to show that reasoning depends upon two primordial activities, the intellectual and the affective. The first consists in mnemonic evocations of perceptions and images of the past; the second appears as aspirations towards a certain end, whither the reasoning is directed. Retention and recall of memories are easily explained thus: "The simple conception of specific mnemonic accumulation, that is to say, of specific nervous energy which passes alternately from the actual to the potential state and vice versa, is sufficient to account completely for the phenomena of evocation" (p. 374). But why formulate this conception, which is simple only through the impossibility of examining the supposed physical mechanism? The satisfaction derived from its contemplation is an unhealthy substitute for a confession of ignorance. It is really offered as an alternative to the theory of the unconscious, but is lacking in the pragmatic justification which the latter possesses. The author criticises this theory on a priori grounds; he has plainly not attempted to employ those practical methods, unknown to the older academic psychology, which necessitate the theory of the unconscious as a convenient means of summing up the results obtained. The author shows a thorough grasp of the views enunciated by recognised authorities, and brings his own ideas into relation with general theory. But the book reminds us that psychology was till recently little more than philosophical speculation, and it is disappointing to the reader who seeks the possibility of applying psychology to the actualities of life.

The Unconscious Mind. By S. HERBERT, M.D., M.R.C.S., L.R.C.P. London: A. and C. Black. 1923. Pp. 230. 6*s.*

THIS book covers within a small space the greater part of psycho-analytical theory. Except for some illustrations from the author's own experience it is a compilation from well-known sources, with occasional criticism. It will prove useful to anyone who wishes to obtain a general idea of the ramifications of Freud's theories and is willing to believe them; but it will carry little conviction to those for whom belief is difficult.

THE PRACTICAL MEDICINE SERIES.

Vol. I. *General Medicine.* Edited by GEORGE H. WEAVER, M.D., LAWRENCE BROWN, M.D., ROBERT B. PREBLE, A.M., M.D., BERTRAM W. SIPPY, M.D., and RALPH C. BROWN, B.S., M.D. Series 1923. Chicago: The Year Book Publishers. Pp. 678.

THE multiplicity of medical literature at the present day makes it impossible even for the research worker to keep abreast of the advances of medical knowledge except in a very narrow field. Epitomes of advances must accordingly be of ever-increasing value to all members of the profession. The present volume deserves a wide circulation; its contents are largely derived from American sources, and if this deprives it of completeness it is at the same time a further tribute to the excellence and magnitude of the clinical and laboratory research which is in progress in the United States. Full references are given. No medical man who reads this book can fail to secure from it both interest and instruction. The volume is compact, and is enriched by numerous illustrations reproduced from the original articles quoted.

A PRÉCIS OF PATHOLOGICAL MEDICINE.

Maladies de l'appareil respiratoire. By FERNAND BEZANÇON and S. I. DE JONG. Paris: Masson et Cie. 1923. Pp. 566. Fr.20.

TEXT-BOOKS seem to be getting smaller as knowledge increases, an observation which suggests that the concentration of knowledge in the older text-books was not very high. The present volume is characteristic of the modern tendency. There are, indeed, as many as 566 pages, but the print being large and the pages small, the words are comparatively few. Thanks to an elaborate table of contents and numerous sub-headings in each chapter, the reader can speedily find any subject he is particularly interested in. The work is a study of the respiratory structures from the nose and larynx to the diaphragm. Under each heading, such as pleurisy, there are sub-headings dealing with physical signs, diagnosis, and treatment, all being arranged in a logical sequence. Scattered throughout the book are innumerable hints and "tips," such as the experienced clinician, rather than the physician who spends most of his time in writing and teaching, is in a position to give. For example, we are told that the pleural effusion due to disease of the heart and kidneys is nearly always on the right side, and that the interlobar effusion is generally due to the pneumococcus. Some parts of this book are much better than others. The short section dealing with tuberculin treatment, for example, is unsatisfactory. The authors would, no doubt, be the first to admit this, and they could well justify themselves by the defence that the position of tuberculin treatment is itself unsatisfactory at present, and that the author who discussed it in a clear-cut, dogmatic fashion would be lacking in truthfulness. There are numerous illustrations, of which the line-drawings are undoubtedly the best. The reproductions of certain skiagrams are poor; they may possibly be of interest to radiologists, but they are not easily interpreted by the student or general practitioner.

On the whole this work fulfils its aim—that of being a handy vade-mecum.

JOURNALS.

QUARTERLY JOURNAL OF MEDICINE.—The October number contains the following articles: Paraplegia and Cauda Equina Symptoms in Lymphogranulomatosis Maligna (Hodgkin's Disease), by F. Parkes Weber. A case of Hodgkin's disease is described which came under the author's care. Ten months before death lumbar pain was noticed, which was later followed by pain in the right thigh and paraplegia. Post-mortem examination showed that these nervous symptoms were due to a lymphogranulomatous mass inside the vertebral canal, attached to the outside of the dura mater over the end of the spinal cord and the cauda equina. A periosteal growth of a similar nature was present on both outer sides of the vertebral centra near the diaphragm. A description is also given of certain other cases from the literature dealing with cord pressure symptoms in Hodgkin's disease.—Erythrœdema Polyneuritis (the so-called "Pink Disease"), by Donald Paterson and J. Godwin Greenfield. Swift, in 1914, first gave the name erythrœdema to this disease of children, many cases of which have subsequently been recorded in Australia and America. The authors, who have observed five cases, give here a clinical account of the disease and produce fresh evidence as to its essential nature, based on the post-mortem examination of the nervous system. A coloured plate shows the characteristic appearance of one of the patients, whose hands, feet, cheeks, and nose are red and swollen, but do not pit on pressure. There are muscular hypotonia and loss of deep reflexes but no pyrexia. The ætiology is unknown, but it does not appear to be a food-deficiency disease, and is probably due to infection. Peripheral neuritis and chronic inflammatory changes in the spinal cord and nerve roots are found after death. On the whole, the prognosis is good and the tendency is towards a complete recovery.—The Reaction to Adrenalin in Man, by D. Murray Lyon. Certain reactions produced by the subcutaneous injection of 0·5–1 c.cm. adrenalin chloride were studied in 35 subjects. Attention was directed to the results following the administration of the drug as judged by local and general reactions, and alterations in the blood pressure, pulse-rate, basal metabolism, respiratory quotient, respiratory rate and depth, and blood- and urine-sugar content. The subjects of the investigation included normal individuals, and sufferers from diabetes mellitus, hyperthyroidism, hypothyroidism, and asthma. Whereas in every case the systolic blood pressure showed some rise, the diastolic reading was usually lowered. The metabolic rate was invariably increased, on the average by 20 to 40 per cent. The blood-sugar was increased, but this rise occurs more slowly than is the case with the other reactions, and takes longer to pass away. A considerable proportion of the patients showed a transitory glycosuria. No changes characteristic of the diseases investigated were discovered.—The Lævulose Test for Liver Efficiency and an Investigation of the Hepatic Condition in Pregnancy, by Kenneth H. Tallerman. The author regards the lævulose test for liver efficiency as a most useful one. Observations were made upon a series of adult males who showed no signs of hepatic disease, and their blood-sugar curves were determined after administering 30 to 50 g. of lævulose by the mouth, according to the weight of the subject. The normal renal threshold for lævulose was found to be lower than for glucose. Women in the seventh month of pregnancy were also investigated. They were selected as normal cases, showing no albuminuria and no toxic symptoms. The lævulose test did not point to any impairment of liver function, but the renal threshold for lævulose in pregnancy was found to be practically non-existent.—Visceral Pain in the Upper Alimentary Tract, by W. W. Payne and E. P. Poulton. An ingenious apparatus was used to register changes in pressure in the œsophagus, stomach, duodenum, and jejunum. It consists of a small rubber bag containing water which the patient swallows and which is connected with a water manometer. With the bag in the œsophagus a wave of contraction followed by a wave of relaxation was observed on swallowing, the rate of their progress being about one inch a second. Peristaltic movement of the œsophagus is also associated with the sensation of "heartburn" felt beneath the sternum. Confirmatory evidence of Verdon's view that angina pectoris is caused by distension of the stomach was not obtained, and in one case the pain was abolished by sucking air into the stomach. In another instance angina was not associated with œsophageal movements. In gastroptosis the pressure in the stomach was found to be higher in its upper than in its lower part, and this difference may be abolished by wearing a belt. Pain in the upper abdominal region may be associated with movements of the pylorus, duodenum, or jejunum, but the exact relation of the pain to these movements was not fully determined.—Liver Atrophy, by James Miller and Andrew Rutherford. This article opens with a historical account of the views held as to the varieties of liver atrophy, and this is followed by a description of 16 cases, of which clinical and pathological notes are given. These fall into three groups: (1) Acute, corresponding with the old "acute yellow atrophy"; (2) subacute, in which, in addition to destruction of liver parenchyma, there is vascular and inflammatory cell reaction and early fibrosis; and (3) "Multiple nodular hyperplasia": here adenomatous nodules of new liver tissue are found. Five plates are included illustrating the macroscopical and microscopical appearances of the liver in various cases.—Generalised Myositis Fibrosa, with the Report of a Case, by J. A. G. Burton, John Cowan, and Hugh Miller. This is a rare disease, of which only five cases have been previously recorded. The example here described was a woman of 25, who gradually suffered from stiffness in the arms and legs, which increased to such a degree as to render her completely helpless. The muscles had the characteristic firm feeling, suggesting a sandbag or piece of wood. The electrical reactions showed no R.D., but the deep reflexes were absent. A small piece of muscle was excised, and on microscopical examination degeneration of the muscle elements was seen. The patient, despite relapses, improved very considerably with massage and electrical treatment. The appearances of the muscle are well shown in the accompanying plate.

THE TROPICAL DISEASES BULLETIN for October contains a review of recent studies on malaria by Clayton Lane.—A large section on medical zoology is reviewed by A. Alcock.—Undulant fever, dengue, pappataci, unknown fevers, Rocky Mountain spotted fevers, Japanese river fever, Oroya fever, and Verruga peruviana are summarised by P. W. Bassett-Smith. Beri-beri and scurvy are also dealt with by the same author.—Leprosy is reviewed by Leonard Rogers; yaws and a number of miscellaneous subjects by A. G. Bagshawe.

Reports and Analytical Records.

NEW ZEALAND IMPERIAL BEE HONEY.

(MARKETED BY THE NEW ZEALAND HONEY PRODUCERS ASSOCIATION, LTD., AUCKLAND. IMPORTED BY MESSRS. A. T. MILLS & CO., LTD., TOOLEY-STREET, LONDON, S.E. 1.)

When analysed this honey was found to have the composition :—

Dextrose	39·4 per cent.
Lævulose	35·8 ,, ,,
Water	16·5 ,, ,,
Cane sugar	1·6 ,, ,,
Ash	0·16 ,, ,,
Acidity (formic acid)	0·01 ,, ,,
Wax, protein, and undetermined matter	6·53 ,, ,,

Microscopical examination showed the presence of clover and heather pollen grains.

This honey is of a mild and pleasant flavour, which cannot be said of all Australasian honeys. It is a pure honey containing no admixture of invert sugar or dextrin-glucose and no preservatives. The makers state that at no time during extraction or packing is it touched by hand. It should prove a useful addition to the limited supply of home-produced honey.

MOUNTAIN DEW SCOTCH WHISKY.

(EDWIN YOUNG & CO., GLASGOW, LONDON, AND LIVERPOOL.)

This well-known brand of whisky, which claims to be "the real original as sold prior to 1834," when analysed gave the following results :—

Proof spirit	70·15 per cent.
Equivalent to	29·85 U.P.
Absolute alcohol by volume	40·1 per cent.
Total extractives	0·15 ,, ,,
Ash (mineral matter)	0·01 ,, ,,
Secondary constituents expressed as parts per 100,000 of absolute alcohol—	
Volatile acidity (as acetic)	19·4
Fixed acidity	Nil.
Furfural	0·6
Esters (as ethyl acetate)	44
Aldehydes	22·5

Considerations based on these analytical figures point to this whisky being a thoroughly well matured and carefully made spirit. The flavour and aroma are agreeable and characteristic of a high-grade Scotch whisky.

SOFTENING OF HARD WATER.

A sample of water received on Oct. 25th from a physician at Scarborough, when analysed was found to contain :—

Total solids	26	parts per	100,000
Total hardness (soap test)	20	,, ,,	,,
Permanent hardness	9	,, ,,	,,
Temporary ,,	11	,, ,,	,,

To soften every 100 gallons of this water 2 oz. of a mixture consisting of 4 lb. freshly slaked and powdered pure lime and 3 lb. of anhydrous sodium carbonate should be added. The 2 oz. should be stirred up with about a quart of the water and the resulting cream thoroughly stirred into the 100 gallons. The whole should be allowed to stand until clear (not less than 12 hours) when the upper portion may be drawn off for use.

LLATAI FINE TOILET SOAP.

(LLATAI TOILET CO., 122, QUEEN-STREET, CARDIFF.)

This soap, which is made up into heart-shaped tablets, is stated by the manufacturers to be prepared from tallow and American resin. When analysed it was found to have the composition :—

Water	12 per cent.
Fatty and resin acids	76·5 ,, ,,
Total ash	17·65 ,, ,,
Free caustic alkali	nil
Alkali (Na_2O) combined as sodium carbonate	0·1 ,, ,,
Alkali (Na_2O) combined as soap	9·44 ,, ,,
Resin acids	Present

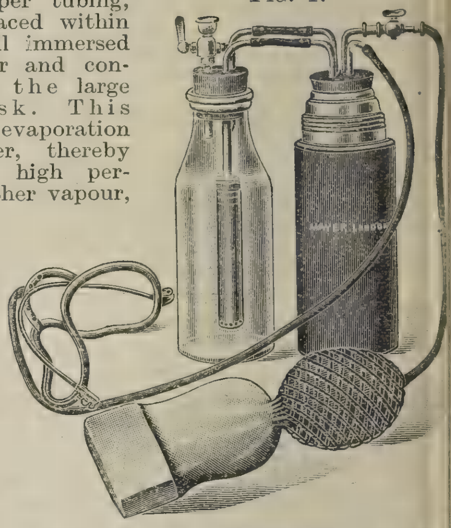
The moisture in this soap is very low, which makes it unusually economical to use. Another point in its favour is the absence of free alkali. It is pleasantly, but not excessively, scented with woodruff, and lathers well.

New Inventions.

APPARATUS FOR THE ADMINISTRATION OF WARMED ETHER VAPOURS.

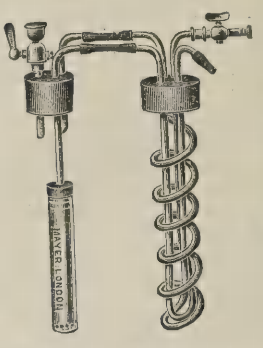
In this apparatus the air from the bellows, instead of passing direct through the ether, is first heated by being passed through a loop of copper tubing, which is placed within the spiral coil immersed in hot water and contained in the large thermos flask. This increases the evaporation of the ether, thereby producing a high percentage of ether vapour, and a steady and uniform strength. The heated air passes by a small tube into the ether bottle and into a large metal cylinder, so that the cylinder which goes to the bottom of the ether bottle can slide up and down over the small tube, and this can be made adaptable, if necessary, to a varying size of bottle. The cylinder, which is closed at the lower end, has a number of small holes through which the air passes into the ether. This results in the air-bubbles, instead of being large, as produced by a single tube, being broken up into a number of smaller ones. Thus the air becomes more thoroughly saturated with ether. The apparatus has the following advantages: 1. A very strong ether vapour can be produced, resulting in a deep anæsthesia, so that very little chloroform need be used, often none at all. 2. The thermos flask being a large one, it is only necessary to change the water in exceptionally long operations. 3. No freezing takes place in any part of the apparatus. 4. By sliding up the cylinder, a weak ether vapour can be procured and a mixture of chloroform can be employed. 5. By removing the cylinder, hot air passes over the ether, so that with the addition of a manometer it can be used as a simple form of apparatus for intra-tracheal use. 6. The anæsthetic vapour or vapours and air are thoroughly heated. 7. The spiral tube in thermos flask is an excellent device for heating nitrous oxide, oxygen, and so forth. The apparatus can be used for warmed oxygen and alcohol inhalations. I have had the apparatus in use for some years in South Africa and found it of great value.

FIG. 1.



Apparatus for the administration of warmed ether vapours.

FIG. 2.



Shows the metal cylinder and the copper tubing and spiral coil.

Messrs. Mayer and Meltzer of Cape Town, and Messrs. Mayer and Phelps, New Cavendish-street, London, are the makers.

Cape Town. G. W. BAMPFYLDE DANIELL, M.R.C.S.

Public Health Services.

Ministry of Health: The General Practitioner Service.

The section of the annual report [1] of the Chief Medical Officer of the Ministry of Health for 1922 dealing with service under the Insurance Act shows how the work of the men in general practice is recognised now as part of the Ministry's activities. Those who undertake insurance work form a definite part of the "great national organisation for the control of disease and the prevention of premature death," to quote Sir George Newman's words. It is well that this should be recognised both by the public and the medical profession.

Both the value and the potentiality of the service is shown by the figures quoted in the report. There are approximately 12½ million insured persons on the practitioners' lists, and rather more than 12,500 practitioners under contract to give the necessary treatment in the form of medical benefit, the average number for which each practitioner is responsible being therefore about 1000. As an indication of the amount of work involved in the year under review it is estimated that 6 million persons received treatment and about 44 million attendances were made. The small number of cases dealt with by the disciplinary committees and tribunals affords some index of the standard of efficiency and conscientiousness which has been reached, and the general satisfaction given; with such evidence, positive and negative, to rely upon the assertions that the medical benefit clauses have wholly failed in their promise and objects need not too much depress us. Lapses, however, do not go unnoticed; 520 reports of investigations into complaints were received in 1922, and in 84 cases, the complaints being substantiated, fines were inflicted. Seven representations were made to the Minister that the practitioner should be removed from the panel. Of these cases, five were investigated by inquiry committees and two of the practitioners were removed from the list. The three remaining practitioners were not removed, but in one case a sum of £100 was withheld from the practitioner's remuneration. In two cases an inquiry was not held, one practitioner's name having been removed from the Medical Register, and the other having given satisfactory assurances for the future ordering of his practice.

The work of the Regional Medical Staff is reported upon in favourable terms. The services of the regional officers have been sought in a greater number of cases. The references of cases of doubtful incapacity for work amounted to 113,685 in 1922 as compared with 69,543 references in 1921. In addition, 1253 consultation cases were referred, and of these 802 were examined. The staff also examined 382 persons claiming old age pensions under the Blind Persons Act of 1920. It may be remembered that it is also incumbent on the regional staff to inspect the medical records and the register of dangerous drugs required to be kept by all dispensing doctors under the Home Office Regulations of 1920. The work of the staff and the practitioners will be more effective when the additional facilities for diagnosis are in operation next year, and the help which the regional medical officers could give to insurance practitioners would be considerably greater if the provision of hospital beds were materially increased.

The attention of general practitioners may be specially called to the concluding observations of Sir George Newman in which he emphasises the importance of early diagnosis. "We are liable to forget that the largest burden of our invalidity, and the chief contribution to premature mortality, are due to the neglect of the comparatively minor or incipient forms of sickness and ill-health. . . . They lay the foundations of the major diseases. . . . This is one of the great spheres where the medical practitioner coöperates with the Public Health Service."

MENTAL HOSPITALS SERVICE.

The recently published reports of three mental hospitals [2] in England, Northern Ireland, and India respectively present several features of interest. Each report is something more than a formal record of the year's activities, and a quantity of information is given which enables the reader to appraise the work of the institutions and the difficulties which have been encountered.

At Hellingly a visiting dentist and surgeon have been appointed, and during the present year it is hoped to add an ophthalmic surgeon to the consulting staff and an operating theatre to the equipment of the hospital. A long list of operations performed during the year under review indicates the future value of this improvement. An out-patient department under the direction of the medical superintendent has been opened in Eastbourne, and the number of patients attending it has steadily increased. Dysentery has unfortunately been more or less endemic in the hospital throughout the year, and 14 deaths occurred from this disease. It is interesting to note that treatment with a stock vaccine (Shiga and Flexner), as recommended by the Board of Control, produced no appreciable effect, but the results of treatment with an antidysenteric serum were "most satisfactory, patients reacting immediately." Good results were also obtained with luminal in epileptic cases, the number of fits being greatly reduced, but no improvement in the mental condition occurred, and withdrawal of the drug was apt to be followed by status epilepticus.

The Belfast District Asylum, which is constructed on the "Villa Colony" system, has undertaken the erection of further new buildings, including "reception villas" for new cases. It has now been decided to combine these in a single building for the treatment of recent cases, male and female, so situated that all contact with the chronic insane will be avoided. The diet of the patients has been amplified, chiefly by the addition of fresh garden produce in the form of salads. No less than 81 per cent. of the patients are usefully employed. A "tuck-shop" has been installed in the grounds, where patients and their friends may buy confectionery, fruit, and tobacco. Parole has been granted to a large number of patients. On the recent retirement of the matron and the head attendant these positions were combined as a single office, and the newly appointed matron has control of both female and male nursing staff. This report, as usual, is attractively illustrated with photographs of the estate and of the wards.

The European Mental Hospital at Ranchi, which accommodates about 150 patients, has recently been transferred by the Indian Government to the control of a Board of Trustees. It has also been "affiliated to the University of London in connexion with the examination for the Diploma in Psychological Medicine." Its name has been changed from "Asylum" to "Mental Hospital" under the provisions of the Indian Lunacy (Amendment) Act, 1922, and this change is regarded as signalising the first step towards the hospitalisation of the Indian asylums. The medical superintendent, in a long report of great interest, alludes to some of the difficulties which attend the treatment of the insane in India. Of these the nursing problem appears the greatest. No mental nurses in India hold qualifications, for there are none to be obtained in that country; their training is often inadequate, and "in existing circumstances—i.e., of inadequate remuneration and work under very trying conditions—persons who are willing to engage in the care of the insane do not possess, as a rule, the education that is otherwise desirable."

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[1] On the State of Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health, 1922.

[2] Annual Report of the East Sussex County Mental Hospital, Hellingly. Annual Report of the Belfast District Asylum. Report of the European Mental Hospital at Ranchi (India).

There is also a lack of any organisation in the country to deal with mental prophylaxis and the after-care of discharged patients. Among the minor difficulties and abuses may be noted the confinement of civil patients in jail for purposes of observation, and the conveying of female patients to the hospital by male police officers. Certification papers are often faulty, and the medical superintendent has suggested an amendment to the existing law to provide for the detention of improperly certified patients pending further steps, but this proposal has not been adopted. The War Office has recently arranged for the free conveyance of mentally afflicted members of families of Government officers to the United Kingdom. Accommodation has been set aside for this purpose in all transports. Difficulties, however, have arisen; "great difficulties are placed in the way of even quite quiet mental cases taking air and exercise on deck" and "in the case of male patients the absurd prohibition to shave or be shaved appears still in force." Finally, under the existing English law, such patients have to be re-certified in the United Kingdom. As regards the work of the hospital, stress is laid on hydrotherapy, which is conducted in the patient's own room in order to eliminate disturbance and enhance the sedative effect, and on occupation therapy, for which a work master and mistress are badly needed. Organotherapy (with extracts of ovary, thyroid, and pituitary) has yielded "most discouraging results." Parole is granted to a large number of cases with no untoward results hitherto. Various changes are contemplated, including the abolition of male attendants and their replacement by female nurses. There is altogether much evidence that lunacy administration is undergoing changes more numerous and rapid in India than in England.

SCHOOL MEDICAL SERVICE.

Liverpool.

The coöperation between the School Medical Service and the University in Liverpool has resulted in an important extension of facilities for dental training. Fourth and fifth year students are allowed a regular attendance at the school clinic for a period of one or two months at a time, during which they are under the personal supervision of the school dentists, and have excellent opportunity for increasing their experience of dental work amongst school-children. At present, owing to the cost of equipment, only four or five students attend simultaneously, but it is hoped shortly to accommodate at least 12 students at a time. The advantages gained by the university and the education committee are mutual and well balanced, as the amount of work undertaken in 1922 shows a considerable increase over that of the previous year—6828 against 5859 cases—although the arrangements had only been in operation for about three months. The increase in the amount of dental work undertaken in Liverpool is enormous. The figures have risen steadily from 13,481 in 1919 to 29,772 in 1922. "The presence of active dental caries was noted in about 78 per cent. of the children of clinic age examined, this being the most prevalent defect amongst school-children for which the committee are required to make provision. As years go on and treatment is carried out over a wider area, the proportion will no doubt considerably diminish, but the problem will always be an expensive one to cope with."

Dr. E. W. Hope, the medical officer, reports that for years past in Liverpool sporadic cases of what was considered to be trachoma, a contagious inflammation of the lining membrane of the eyelids and front of the eye, have been discovered chiefly in the Kirkdale district, but not in sufficient numbers to require special action to be taken. During 1922, however, a number of suspicious cases were reported from schools in different centres of the city, and on these being sent to the committee's oculist for examination and report, it was found that 28 out of 32 were definite cases of trachoma, the remaining four being cases of follicular conjunctivitis. Only two girls were affected, and the majority of the children were between 12 and 13 years of age. At the end of four months only four were cured. During the year 115,835 children were examined, 73,484 of these being elementary school-children, and only 306 cases of malnutrition were found. This is equal to 0·87 per cent. and compares with 1·3 per cent. in 1921 and 1920. In 1913, the year before the war, this figure stood at over 7 per cent., and in 1914 was 5 per cent., so that the recent figures may be considered small by comparison.

The report of the inspector of physical training makes interesting reading, and it is good to know that the scheme of organising games for boys and girls in the parks during the summer holidays is being continued. The parks are provided with paid "play leaders," and games apparatus consisting of cricket bats, balls of various kinds, skipping ropes, net-ball outfits, rounder bats and balls, in addition to numerous other necessary appliances are provided by the committee. This apparatus is stored in lock-up huts which were erected in the parks in 1920. The scheme is one which should be copied far and wide.

Manchester.

In Manchester the staff has been reduced by two nurses and three clerks, and Dr. Brown Ritchie considers the staffing in all departments below the amount necessary for satisfactory work. He draws the committee's attention to the fact that a considerable amount of clerical work, which is bound to increase, is involved in work not strictly medical, such as the work connected with school attendance. Such work as this cannot be delayed or set aside as promptness of action is an absolute necessity here. He deplores also the increase in the number of cases seen by the doctor, from eight to ten per hour. The Shakespeare-street School for Stammerers dealt with 57 cases in six courses—48 boys and 9 girls. Analysing 100 children chosen haphazard out of those already treated at this centre, 78 per cent. might be regarded for practical purposes as normal speakers, 45 of these had perfect speech, the remaining 33 speaking perfectly normally to the ordinary listener, but stating that under stress of excitement or if in a state of poor health there is an occasional hesitation of varying degree—this, they say, they are able to control so that the interruption is scarcely perceptible to the listener; 17 stammered at intervals but not to such a degree as to unduly interfere with their occupation; five stammered in a pronounced fashion. The number of cases of scabies has decreased by 236—almost one-third of the decrease being attributed to the Norwegian treatment by Marcussen's ointment [3] which has been used at the special skin clinic here for two years. The treatment is now given in a special department of one of the clinics, and one nurse, one bath attendant, and one bath are now made use of instead of the two nurses, three bath attendants, and three baths of the previous year. The number of children examined was 35,574 in the routine group, 27,729 "specials," and 24,415 "re-examinations." The number of inspections made by nurses for uncleanliness was 235,359. Dr. Brown Ritchie urges the necessity for day open-air schools for the 2000 cases found specially suitable during the past year, and the insufficiency of accommodation for mentally defective children is also brought to the committee's notice; the accumulation of cases now waiting to be dealt with amounts to 900. In the medical officer's opinion, with such an accumulation and in the absence of provision for special training of children over 14 years of age, it is inexpedient to retain all cases until they have reached the age of 16. This is a point which decidedly requires consideration by the majority of education authorities at an early date. The coloured chart at the end showing the growth of medical inspection and treatment since 1915 is very striking and speaks for itself.

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[3] See The Lancet, Modern Technique in Treatment Series, No. V., The Treatment of Scabies and Pediculosis, 1923, i., 247.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 10, 1923.

EDUCATION IN OTO-LARYNGOLOGY.

The Semon lecturer acted wisely in choosing as his subject a plea for adequate training of the student and graduate in laryngology and otology, and for closer coöperation in the conduct of clinics and in collective investigations in these subjects; and we believe that Dr. Logan Turner's address, delivered at the Royal Society of Medicine on Nov. 1st, will do much to further the cause which he has at heart, the advancement of oto-laryngology in this country. Two recent educational alterations have considerably affected the relations of the student to these subjects. In the first place, the new regulations of the General Medical Council have now made instruction in laryngology and otology compulsory for every candidate seeking a degree in medicine and surgery, and, secondly, the Conjoint Board have decided to grant, after examination, a special diploma in oto-laryngology, the object of which is, more particularly, to provide what may be called a hall-mark for medical officers working under the Ministry of Health and the educational authority, whose duties are largely concerned with disease of the throat and ear. Dr. Turner points with satisfaction to these two signs of progress and believes, we think rightly, that the public will benefit from the improved training which the medical officers will receive, and that the specialty will gain prestige through the better conduct of the work performed. He advises all who are interested in the welfare of these branches of medicine and surgery to consider carefully the best means to provide both the student and the budding specialist with adequate training, and, beside these two points, he considers that a third and most important matter is to afford improved opportunities for education to the teacher himself.

For the education of the student Dr. Turner suggests a ten weeks' course of mixed didactic and clinical instruction, consisting of three meetings per week for each student—that is, 20 hours devoted to clinical work and ten to lectures—and he gives his opinion that a considerable amount of useful knowledge can thus be imparted. As he says, it is all that can reasonably be granted to one of the subsidiary subjects; it is certainly an increasingly difficult problem for the student to find time to acquire even a minimum adequate knowledge of the continually expanding number of subjects which he has to learn. Some knowledge of diseases of the throat, nose, and ear is very necessary to the general practitioner, who finds that these diseases play a far larger part in his work than he had any idea of when he was a student. There is no doubt that a more intimate knowledge of the diseases of these regions, and of their relationship to disease of other parts of the body, than is at present usually possessed by the practitioner, would be of great value both to him and to his patients. The article by Dr. A. L. Yates on Painless Maxillary Sinusitis, published in our issue of last week, and that by Dr. T. B. Jobson on Unsuspected Nasal Sinus Disease in this number, are witnesses of how easily common intranasal diseases may be overlooked by those who have not been taught to expect them, and how various and far-reaching their reactions on distant parts of the body may be.

For the education of those intending to become specialists Dr. Turner recommends a very thorough course of training, occupying some five years after qualification, of which the first two years, we are glad to see, are to be spent in general training either at hospital or in private practice. He urges that the special hospitals, and special departments of general hospitals, should demand from candidates applying for appointments to the staff evidence that they had undergone an adequate training on the lines that he describes, and he believes that until this is an invariable rule we cannot hope to see a change in the mental outlook of the young specialist towards his training. While we agree that at present no such regular course is followed as that prescribed by Dr. Turner, nevertheless we think that aspirants for staff appointments to the special departments of our more important hospitals will be found to have worked and studied industriously for fully the period he suggests. Dr. Turner thinks that the Fellowship of a Royal College of Surgeons on its present basis should not be an essential qualification for appointment to the special departments of a hospital, and considers that this rule induces the prospective specialist to devote the greater part of his time and energy to general surgery; he suggests that the Royal Colleges should grant a Fellowship to the oto-laryngologist on a special basis, after a prescribed course of study, by examination confined to the anatomy, physiology, pathology, and surgery of the territory embraced by the two specialties. It is an interesting point, and Dr. Turner has rendered a service in ventilating it; we think that many will consider that to abolish the necessity for the ordinary Fellowship would be to destroy that sound groundwork of general surgery which is so essential to the specialist, and that it should not be replaced, though it might be supplemented, by a special examination.

On the education of the teacher, Dr. Turner makes a powerful plea for better organisation of the clinics and special departments, so as to make time and opportunity for teaching on a larger scale; in the clinic better team-work, closer coöperation between the various departments of the same hospital, and more coördination between special hospitals and departments throughout the country, and even throughout the Empire. He urges that, as a preliminary, all clinics should adopt one and the same system upon which to classify the diseases of the specialty, and, finally, he gives instances of subjects which offer a hopeful field for collective investigation. Dr. Logan Turner has performed a service, not only to his own specialty but perhaps also to others, for all would benefit by improved facilities for education, by better organisation, and by greater coöperation.

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THE MINISTER OF HEALTH'S OFFER.

After a real discussion with representatives of the panel executive the Minister of Health has made his final offer of terms for a new contract with insurance practitioners. This offer is in the form of a letter to the Insurance Acts Committee, which has been widely circulated, but which we print again for convenience on page 1047. The Minister was accompanied by his Scottish colleague, so that it may fairly be concluded that the terms apply to the whole of Great Britain. Whether this offer represents, as the Minister hopes, a reasonable and fair basis of settlement "under the present circumstances," can only be determined by those who know what are the present circumstances to which the Minister refers. It seems clear enough that stringent economy is a necessary item of Government policy. As part of the new offer the Government actuary is prepared to meet an actuary nominated by the doctors, and if it be clearly shown that there is no more money available, no doubt the insurance medical service will do well and wisely to accept the former of the Minister's alternative offers in paragraph (5). This alternative would fix the capitation fee at 8*s.* 6*d.* for a period of five years, unless the Royal Commission to be appointed should suggest material alteration in the conditions of service. Our Special Commissioner has formed the impression that "under the present circumstances" this offer will be regarded as acceptable by panel doctors in one area at least, although it would be premature to forecast a decision which will have to be taken by representatives of all the panel committees of Great Britain at the special conference to be held on Nov. 14th.

The final discussions with the Minister of Health appear to have been in the nature of real negotiation, and the conditions laid down in the earlier paragraphs of the Minister's letter make it far easier for the doctors to accept with good grace one of the alternative offers. A formula which is set out in paragraph (1) runs as follows:—

> "Medical benefit is, with sickness, disablement and maternity benefits, one of the primary benefits under the National Health Insurance Acts. Other benefits are additional and contingent upon the foregoing being first provided. The question, what is the proper amount of remuneration to be paid to the doctors, is one to be determined on its merits by the Government after due inquiry and after negotiation with the representatives of the profession."

This will go far to allay the uneasy feeling that approved societies have manœuvred themselves into a favourable position for taking over the control of medical benefit. The formula is something like a pledge, which we desired to have from the responsible Minister, that this fear was ill-founded. The economy campaign, it is now seen, created a real danger of separation of the insurance service from the rest of the health services of the Ministry. Self-supporting and self-contained, the service would be at the mercy of the men who are now telling the public that the Minister of Health's offer will deprive insured persons of their legal rights. For this reason we have set out alongside the offer, and at the risk of vain repetition, what it was that happened in 1911; for the same principle is now involved, and, if it is to be overthrown in 1923, the reversal of policy must be made by authority of Parliament after weighing all the relevant facts, and not by any form of administrative action.

The promise of a Royal Commission gains importance in view of the Premier's statement at Swansea on Oct. 30th, that instructions had been issued for a far-reaching inquiry into the manifold possibilities of social insurance. This declaration seems to foreshadow a wider scheme of protection for the worker against sickness, accident, unemployment, and poverty in old age. In spite of the prevailing industrial depression the existing unemployment insurance has recently been shown to be solvent. We may hope that the Royal Commission will see its way to review this wide field of social insurance in so comprehensive a manner as to include the reform of the Poor-law, and to secure its machinery of medical relief for the purposes of a complete health insurance scheme. The delay in the transfer of Poor-law medical institutions is hardly tolerable. Finally, the increased mileage grant to the rural practitioner will help to solve the knotty problem of working expenses in sparsely populated areas. The wonderful solidarity of panel doctors, with the support behind them of all other branches of the profession, has, we feel sure, been a potent factor in producing the greatly improved situation. The Insurance Acts Committee may be congratulated upon the loyal support which it has received, and on the large measure of approval shown in the public press of the country. As one of the most friendly of our daily contemporaries has put it, a settlement on the lines of the Minister's final offer would end the acute phase of the panel controversy and enable difficulties which have arisen to be examined quietly and efficiently. The precise fee which it is just and possible to pay to the panel doctor is only one of the difficulties to be considered.

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INSULIN HYPOGLYCÆMIA: DANGERS AND PRECAUTIONS.

THE advantages of insulin in the treatment of diabetes mellitus are now well recognised; the dangers, although they have been described, are not so well recognised, partly because the treatment has been confined to comparatively few patients who have been under fairly close supervision. The most striking effect of an injection of insulin is the reduction which takes place in the amount of sugar in the blood. It has been shown that when the blood-sugar of a rabbit falls below 0·05 per cent, the animal has a convulsion which may be of quite a short duration or which may kill the animal. This phenomenon has provided a useful basis for the standardisation of insulin. The quantity of insulin which will depress the blood-sugar of a rabbit weighing about 2 kilos below 0·05 per cent. in two hours is called three units. Tne exact cause of the convulsion is not known, but it is connected in some way with the amount of sugar in the blood since it can be checked in a few minutes by the subcutaneous injection of some grammes of dextrose. The rabbit then seems as well as ever, provided that the dose of insulin was not too big and enough sugar was given. Similar remedial effects can be produced by injecting either adrenalin, which raises the blood-sugar, or pituitary extract. In human beings the symptoms of overdosage are various. They do not, as a rule, occur unless the blood-sugar is less than 0·05 per cent., although they may occur when the blood-sugar is still as high as 0·09 per cent. The commonest symptom complained of is a feeling of inertia or lassitude, sometimes accompanied by slight dizziness, about three to four hours after the injection. This is often accompanied by sweating and abdominal pain, which is described as similar to a hunger pain. Tremor of the hands is often complained of and numbness of the hands, face, or tongue; diplopia may also be present. All these symptoms, although very unpleasant, do not put the patient in any danger of life. They may be relieved by giving, at once, a hot drink or some of the food which would have been eaten at the next meal. It is not necessary or desirable that patients should take sugar in order to relieve these symptoms. During the preliminary period of treatment in which the correct dose of insulin is being ascertained some slight symptoms are often unavoidable, but once the blood-sugar is normal and the size of the dose settled the patient should not experience any such symptoms.

The dangerous symptoms are: (1) a state of unconsciousness and (2) convulsions of a peculiar kind. The unconscious state is very alarming, and although it usually occurs after some of the milder symptoms already described it may take place in their absence. Unconsciousness may develop while the patient is talking or eating (just as a person may fall asleep while doing these things), and the state is very similar to one of deep slumber, from which, however, the patient cannot be roused, the breathing, pulse, and colour all being good. Although the rabbit has convulsions it was at one time thought that human beings did not suffer from them. The case described by Dr. C. M. HINDS HOWELL in THE LANCET of Nov. 3rd (p. 1007) is certain evidence of their occurrence. Moreover, in a pamphlet[1] which has just reached us through the Rockefeller Foundation convulsions find a place between aphasia and collapse in a list of symptoms likely to follow an uncorrected overdose. Although the condition is so easily relieved by the giving of sugar, it is one which calls for a widespread knowledge of the symptoms and treatment. It is certain that a patient who is taking more than 15 or 20 units of insulin and going about his occupation would be well advised to carry four or six lumps of sugar in his pocket, either dry or dissolved in water, in order to be ready for emergencies. This precaution will, by the way, add to the temptations of the dieted patient. It would also be well if the patient would carry a card about in a pocket or round his or her neck stating that he or she suffers from diabetes, is taking insulin, and has some sugar in a pocket. This precaution is suggested by the prospect of a doctor being called to see a patient who is either unconscious or having convulsions. If he did not know that the patient was taking insulin it is extremely unlikely that he would diagnose the cause of the condition correctly. A dose of sugar, either four or six lumps, dry or in solution, should be ample to restore the patient, provided that he can swallow. If not, a subcutaneous injection of adrenalin, 1 in 1000, minims 15, will restore the patient to consciousness within about five minutes. Sugar should be given afterwards in order to prevent any fear of relapse. If no adrenalin is at hand, pituitary extract, 1 c.cm., will also act very promptly. If neither of these is available, it will be necessary either to give the sugar by means of a stomach-tube or to inject about 20 g. of dextrose (5 per cent. solution) intravenously. In order to avoid the possibility of these dangerous symptoms arising the dose of insulin should always be moderate in size, and if larger doses than 20 units are being given the patient should certainly take the precautions described. The actual size of the dose which will be liable to cause dangerous symptoms will, of course, vary with the weight of the patient, the amount of sugar in the blood, and the amount of carbohydrate eaten after the insulin. When a patient has taken a large dose of insulin—say 30 units—and has eaten a definite amount of bread he does run a certain risk in that the bread may not be absorbed or, apparently after exercise, as in the patient whom Dr. HOWELL saw, may not be sufficient. One of the early causes of overdosage has fortunately been removed by the care with which insulin is now standardised under the auspices of the Medical Research Council.

It is not desired to deter any patient from having insulin, but rather to draw attention to the dangers in order that they may be avoided and that precautions should be taken in order to make the treatment a safe one. Forewarned is forearmed.

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A NEW THEORY OF THE ATOM.

THE termination of Sir HUMPHRY ROLLESTON'S tenure of office as President of the Rontgen Society during the twenty-fifth anniversary of its foundation was marked last Tuesday by the announcement of the incoming President, Sir OLIVER LODGE, of a new theory of the atom. He presented it as the sketch of an hypothesis to be criticised by physicists and assumed the nucleus (or proton) of the atom to be in rotation about its axis at a speed comparable with the velocity of light, thus giving it its large mass, some 1850 times that of the electron. He surmised that the normal ether contained its constitutional rotation, and that upon this, when a pair of electric units were being somehow generated, two equal and opposite rotations were superimposed, one opposing the original rotation and giving the net result zero and the other in the same direction giving a result slightly nearer to the velocity of light than before. Round the nucleus there might be an ethereal circulation essential to the existence and behaviour of the nucleus, very intense close to and decreasing with the distance according to the vortical or ethereal law, which would have, however, nothing to do with the laws of gravitation or electric force. It was possible to conceive of strata, where the speed would obey astronomical laws, or of gravitational or electrical levels. An electron would be carried forward by the fluid at that position that satisfied its own requirements. It would be attracted to the centre in a way that the fluid was not attracted, but would have sufficient tangential velocity to counterbalance the attraction. As by hypothesis the electron was only a modified part of the fluid, the revolution it would experience would not be one involving acceleration and consequent radiation, but it would abandon itself passively to the fluid. The levels would not occur at regular intervals, but in such orbits when the vortex velocity and the electronic velocity were of the same value. Intermediately there would be no equilibrium, and the electrons would fly out or in according to circumstances.

Sir OLIVER LODGE'S address dealt with the stages by which knowledge of atomic structure had been attained. After pointing out how and why X rays and their use in connexion with crystals had made an epoch in atomic research, he remarked on the fortunate chance whereby the silver salts on a photographic plate were sensitive to the rays. MOSELEY'S work, which showed how the elements were stepped up in simple arithmetic progression, had brought the theory of discontinuity right into the heart of the atom, and it was remarkable to note the way in which arithmetic conceptions were entering into physics when such natural units as atoms and electrons were employed. He protested, however, at the attempt to introduce the idea of discontinuity into space and time. The discovery of the quantum did not displace the laws of mechanics which still held. Discussing X rays from the medical standpoint, he noted that the radiation depended entirely on the nature of the luminous stimulus, and remarked how the recent progress of physics had made it possible for X ray workers to analyse the nature of the rays and make use of them for the purposes for which they were most suitable. He expressed a very marked preference for the kinetic atom of the physicists as contrasted with the static atom of the chemists.

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WE regret to announce the death of Dr. Thomas Henry Green, consulting physician to the Charing Cross and Brompton Hospitals, and author of the well-known manual of pathology, which occurred at his home in St. Albans on Monday last, Nov. 5th, in the eighty-second year of his age.

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[1] Iletin (Insulin Lilly). Revised Oct. 15th, 1923.

Annotations.

"Ne quid nimis."

THE LONDON FEVER HOSPITAL.

In years when the metropolis is free from serious epidemics the London Fever Hospital is apt to escape public notice. Like other hospitals under our voluntary system it has its common difficulties in the shape of high rates, increased prices, and the incidence of heavy taxation upon those classes which would normally furnish its supporters and its patients. In addition, it has its special difficulties in competing against rate-aided institutions. The Metropolitan Asylums Board can open, close, or change the character of its various establishments at discretion according to temporary requirements. The London Fever Hospital must continue to offer the specific facilities for which it was founded, and, unless adequate support is forthcoming in lean years, it must incur cumulative losses which in time may be fatal to its existence. Financial support, of course, is essential, but the need of money contributions is not so acute if the medical profession will give the equally valuable support of sending patients to be treated there. Not for one moment is there the slightest idea of underestimating the admirable treatment given in rate-supported institutions if we venture to suggest that there must be large classes of Londoners who do not wish for gratuitous treatment in Poor-law hospitals or at the expense of the rates. There must be many who at the same time are anxious to avoid the full cost as well as the risk and inconvenience of being treated for infectious illness in their own homes. And, though there are no class distinctions in medicine, there may be middle-class patients for whom the irksome period of convalescence will pass more cheerfully in a hospital where others of their kind are treated than in an institution open to all comers.

It has been suggested that the London Fever Hospital is not sufficiently well known to the practitioner. If this be so, it may be explained that this hospital was founded as long ago as 1802, being the first to be opened in London for the treatment of infectious fevers. It accepts for treatment and isolation patients suffering from all such fevers, including influenza, pneumonia, rheumatic fever, encephalitis lethargica, and cerebro-spinal fever, but not small-pox. It provides ward accommodation at 5*s.* to 7*s.* a day, as well as treatment in private rooms from 6 guineas a week, for scarlet fever, measles, German measles, and diphtheria cases, and the charges do not seem unreasonable. A doctor, it is true, though aware of the existence of these facilities, may yet feel a natural disinclination to lose sight of his patients by sending them off to Islington. He can, however, visit them there at any hour convenient to himself, though in practice it is probable that a single visit will be sufficient to reassure, since in addition to its resident medical officers the hospital has always been generously served by distinguished physicians from outside. Relatives, too, can visit patients in private rooms or wards, though for obvious reasons they are not advised to do so.

With the special facilities to subscribers—a form of insurance for householders—we are not now concerned. We are not addressing the subscribing public but the medical practitioner. If it be true that doctors are not fully aware of the existence and record of the London Fever Hospital, we commend to their notice an excellent institution which, if its beds stand empty much longer, is in serious peril of extinction.

THE BLOOD IN PSORIASIS.

Dr. Albert Strickler, professor of dermatology and syphilology, and Dr. Eugene Asnis,[1] professor of pathology and bacteriology of the Temple University Department of Medicine, Philadelphia, remark that although psoriasis is one of the commonest dermatoses, its specific cause and cure are still unknown. They point out that the bacterial theory of its origin to which they subscribe is supported not only by the clinical symptoms but also by the results of examination of the blood. A differential blood-count made by them in 27 patients suffering from psoriasis, which varied in type, severity, and extent, showed that 14, or 54 per cent., had a lymphocytosis of 35 per cent. or over, which was always at the expense of the polymorphonuclear leucocytes. The remaining white cells were all practically within the normal ratio. An examination of the blood smears was then made by Fontana's method to find some form of spirochæte, but with entirely negative results. Finally the Wassermann reaction was tested in 34 cases of psoriasis, two antigens being employed—viz., the alcoholic extract of human heart and the same antigen fortified by cholesterin. The anti-sheep hæmolytic system was used. The results were again negative in all cases. Commenting on their investigations the writers come to the conclusion that as marked lymphocytosis is often found in chronic infectious processes of both bacterial and parasitic origin, such as tuberculosis or trichophytosis, the presence of lymphocytosis in psoriasis is another sign-post pointing in the direction of bacterial origin for this common disease.

PROSTATIC DISEASE IN OLD MEN.

A paper by Dr. E. Platou in *Norsk Magazin for Laegevidenskaben* for October is an epitome of the advances made during the last ten years in the operative treatment of adenoma and carcinoma of the prostate. His material consists of 198 cases under the care of Prof. P. Bull between Jan. 1st, 1913, and Jan. 1st, 1923. There were 26 deaths and 117 cases in which a radical operation was performed, the 10 deaths among the patients operated on being equivalent to an operation mortality of 8·5 per cent. There were 152 cases of adenoma and 46 of carcinoma. It was somewhat remarkable that there was so little difference in the immediate mortality in these two classes; there were 19 deaths among the patients with adenoma, and seven among the patients with carcinoma, the mortalities being 12·4 and 15·2 per cent. respectively. These figures represent deaths in hospital, and when the late results of treatment are studied the chances of recovery are seen to be much greater for patients with adenoma than for those with carcinoma. Of the 152 patients with adenoma, 99, or 65·1 per cent., were discharged as cured, whereas only eight of the 46 carcinoma patients were discharged improved, three of them being found to be without signs of recurrence three years later. The ages of the patients in the two classes were practically the same, the average being 68·4 years for the patients with adenoma, and 69·7 years for the patients with carcinoma. But there was a marked difference in the average duration of the symptoms before the admission of the patients to hospital; it was four years and nine months for the patients with adenoma and only a year and a half for the patients with carcinoma. With regard to sepsis, it was observed that uneventful recovery often occurred in cases in which the urine was infected before the operation, whereas originally sterile cases sometimes showed severe post-operative sepsis. In more than half the number of cases (53·3 per cent.) the urine was infected before the operation, and Dr. Platou has come to the conclusion that the importance of an infected bladder before operation has been much overrated. In 40 cases the "rest" nitrogen in the serum was estimated, and in 28, or 70 per cent., it was found to be above normal. This test has proved an invaluable guide in deciding when to operate, and it is Prof. Bull's practice to wait till conservative measures have restored the "rest" nitrogen to normal before enucleating an adenoma. When the "rest" nitrogen content of the serum is very high he does not even attempt a cystostomy, but contents himself with passing a catheter twice a day, taking care not to evacuate the bladder completely till the functions of the kidneys have been at least partially restored. He has discontinued the use of a permanent catheter after operation, having found that, among 20 cases thus treated, there were as many as seven in which epididymitis, and three in which severe urethritis developed, whereas among 20 patients treated without a permanent catheter there was only one who developed epididymitis. The operation he prefers is the two-stage suprapubic operation under sacral anæsthesia with novocaine. Of 108 radical operations, 79 were performed in two stages and only 29 in one. The mortality rate of the two-stage operation was 7·6 per cent., and that of the one-stage operation 10·3 per cent. The fact that about 13 per cent. of all the cases of disease of the prostate in old men terminate fatally in hospital, whether the treatment be operative or conservative, clearly shows that, when urinary symptoms overtake elderly men, the expectation of life is appreciably shortened.

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[1] Archives of Dermatology and Syphilology, October, 1923.

THE OCULO-CARDIAC REFLEX IN MUMPS.

IN a recent communication to the Medical Society of the Paris Hospitals, Dr. René Benard [1] refers to a paper by Margarot, who found the oculo-cardiac reflex present in 90 per cent. of his cases of mumps, though it was found in only 62 per cent. of normal subjects. This high figure is explained by Margarot having regarded as a positive reaction a diminution of only 6–8 beats a minute, which was present in two-thirds of his cases. Dr. Benard, on the other hand, who has examined the reflex in more than 50 cases of mumps, has come to the following conclusions. Mumps normally causes a pronounced bradycardia of the sinus type, but does not predispose as might be expected a priori to an increase of the oculo-cardiac reflex, which, on the contrary, is much rarer than in normal subjects of the same age. The conclusion may therefore be drawn that mumps reduces the susceptibility to this reflex. In cases where the oculo-cardiac reflex was obtained a much longer ocular compression was required than in the normal subject to produce it. Apparently, therefore, the permanent hypertonus of the vagus characteristic of mumps prevents any fresh stimulation. In 50 per cent. of Dr. Benard's cases the pulse did not vary in the course of the test. In only two did it fall below 50 after ocular compression; in 25 per cent. it was between 50 and 60, in one case between 60 and 70, in 12 per cent. it remained normal (between 70 and 80), and in 20 it exceeded 80.

EXPERIMENTAL HERMAPHRODITISM.

Dr. Wilhelm Krause,[2] of Reval, has succeeded in repeating Steinach's experiments on feminising male guinea-pigs by means of ovarian transplantation, although he has modified Steinach's technique by implanting the ovaries into the testicle instead of into the subcutaneous, intramuscular, or subperitoneal tissue. The main object of these investigations was to ascertain whether the action of the hormone derived from the implanted organ was dependent on the relative amount of ovarian and testicular tissue present, consequently he varied the proportion of ovary to testis as follows: Two ovaries were implanted into one testis, the other testis being removed; one ovary into each testis; one ovary into one testis, the other being left intact; half an ovary into one testis, leaving the other untouched, thus giving proportions of ovary to testis of 2 : 1, 1 : 1, ½ : 1, and ¼ : 1. Out of 44 experiments (of which 11 animals, unfortunately, died in the cold weather) 12 have, up to date, given positive results. Two to four months after the operation an unmistakable hypertrophy of the nipples became apparent, reaching, in one to seven months after the onset of growth, a maximum of 7 mm. in length, which is the normal length in a lactating female, whereas the normal length for a male does not exceed 1–1½ mm. The form of the mammary gland also took on the characteristics of a female, broad at the base, tapering cone-shaped to the apex. After a further three to four weeks the organ became smaller again but never regained its original size. Out of the positive cases, two belonged to the series in which the proportion of ovary to testis was ½ : 1. Sufficient time has not yet elapsed to show whether all the 33 animals will give positive results, but it can already be said that those with the low proportion of ovary are not behind the others in producing the characteristic changes. Thus the quantity of ovary does not appear to influence the effect of the hormone. At post-mortem examination the testicle operated on was found to be smaller than normal, but spermatozoa were present in the epididymis, and the seminal vesicles and prostate were normal. The contents of the seminal vesicles coagulated in the normal time, whereas it has been shown by Gley that in castrated animals the fluid loses its coagulability. Macroscopic examination of the testicle showed no normal ovarian tissue, although degenerated cystic tissue could be demonstrated. The results of microscopical examination are to be announced later.

THE CAUSES OF CHRONIC INVALIDISM.

SWEDEN is a country where every person, with an income below a certain limit, is entitled to a pension when ill-health or age inflicts permanent incapacity for work. In 1918 such pensions were given to 14,607 persons, of whom 5538 were men and as many as 9069 were women. A study of the morbid conditions qualifying these persons for pensions has recently been conducted[1] by Dr. G. Kahlmeter, consulting physician to the Government department which deals with these pensions. A medical certificate indicating the nature of the disability from which a prospective pensioner is suffering must show what the nature of this disability is, and it is interesting to note that in middle age women are much more subject to crippling by articular rheumatism than men. The fact that the ratio of women to men was as 1·6 to 1 was largely due to this factor; even when a correction was made to allow for the excess of the female over the male population the ratio of women to men was yet 1·5 to 1. This "super-invalidism" of women was not evenly distributed in the different age-groups. Beginning at the age of 40, it became still more evident during the following decade, reaching its maximum between the ages of 50 and 65. In this period the ratio of pensioned women to pensioned men was as great as 2 to 1. After the age of 65 the difference between the two sexes was much less marked, and it would seem that middle age is the period in which the wage-earning woman is most susceptible to the wear and tear of life. In 58·2 per cent. of the pensioners of both sexes the age of 65 had been passed, and only 15·2 per cent. were between the age of 60 and 65. Senile debility and arterio-sclerosis were the diseases qualifying for a pension in 55 per cent. of all the cases, and the disease coming next in the order of frequency was articular rheumatism, which existed in 9·1 per cent. of all the pensioners, 7·2 per cent. of the men and 10·2 per cent. of the women being given a pension on account of this disease. Pulmonary tuberculosis, on the other hand, qualified considerably more men than women for pensions, 7·9 per cent. of the pensions for men being on account of pulmonary tuberculosis, as compared with only 4·6 per cent. in the case of women. Among the pensioners under 45 pulmonary tuberculosis was the most common cause of invalidism, and in the younger age-groups epilepsy, valvular disease of the heart, and mental disease figured most prominently. The age of 40 to 45 was the age of predilection for articular rheumatism. It is curious to find such well-known diseases as ulcer and cancer of the stomach, asthma, chronic bronchitis, and organic disease of the nervous system playing such a comparatively modest part in these statistics, which constitute a useful supplement to mortality statistics.

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[1] Bulletins et mémoires de la Société médicale des Hôpitaux de Paris, 1923, xlvii., 708.

[2] Deutsche med. Wochenschrift, Oct. 19th, 1923.

[1] Acta Med. Scand., 1923, lix., 153.

THE ORIGIN OF HERNIA.

The Mitchell Banks Memorial Lecture was delivered, on Nov. 1st, in the University Surgical Theatre, Liverpool, by Sir Arthur Keith, who took as his title the Origin and Nature of Hernial Formations. After alluding to the frequency of hernia, he controverted the theory that all hernias were of developmental origin, and proceeded to show that, in the case of femoral hernia at least, there is no evidence of a truly congenital process of peritoneum ever being found, while the factors present are those associated with hernial formation due to pulsion from within. Chief amongst these are local weakness of the abdominal wall at a point where it is pierced by vessels, and the increase of intra-abdominal pressure caused by even the slightest muscular strain. Illuminating parallels were given in the herniæ of the mucosa at the orifice of the bile-duct near the duodeno-jejunal flexure and in the sigmoid colon. Passing next to the subject of inguinal hernia, the speaker described the descent of the testis as a process of growth, and in no sense a pulling down by muscular contraction. The lower portion of what has been known as the gubernaculum testis he prefers to call the "inguinal strand," as it never fully develops into muscle tissue. Sir Arthur Keith looks upon it as the representative of the suspensory muscle of the marsupials. The true gubernaculum follows the track formed by this inguinal strand, and as it goes replaces it by newly developed cells. The essential element in the prevention of inguinal hernia is the unimpaired action of what the lecturer would like to call the "inguinal shutter"—that is, the lower arched border of the internal oblique contracting, straightening, and so descending over the internal ring, like the upper eyelid over the eye. This action is an unconscious reflex preceding voluntary effort of any kind, and may be interfered with by any abnormal abdominal condition. Once a sac has formed, nothing short of its removal will allow the shutter to work, or, as Sir Arthur Keith graphically put it, "until you take your coat-tail out of the hinge you can't shut the door." Finally, in reference to the medico-legal aspect of hernia, the lecturer lent the weight of his authority to insist on the extreme rarity of any truly traumatic hernia—that is, of a hernia the result of actual tearing of tissues by a single sudden violence.

SYPHILITIC CHANCRE OF THE VAGINA.

Dr. Paul Lhuillier[1] devotes his Paris thesis to a consideration of syphilitic chancre of the vagina, the rarity of which he illustrates by the following statistics. Among 249 cases of syphilitic chancre in women Fournier noted only a single example of vaginal chancre, and even that was doubtful. In the late Prof. Gaucher's service at the St. Louis Hospital in Paris, out of 1182 patients observed in the course of ten years in whom the chancre was definitely localised, Bobrie de la Rochelle found only four instances of chancre of the vaginal wall. Dr. Lhuillier himself has collected 12 cases from the literature, in addition to two which are original. In only nine, however, was the localisation of the chancre exclusively vaginal, the others being examples of chancre of the vulvo-vaginal region. The comparative immunity of the vagina in this respect, which may be compared with the immunity of the face from chancroid, scabies, and psoriasis, of the œsophagus from diphtheria, and of the upper respiratory tract from thrush, has not hitherto received any satisfactory explanation. In the great majority of cases vaginal chancre is situated in the posterior third or anterior third of the canal, while it is very rarely found in the central portion. In shape it is usually round, but it may be oval or irregular in outline and vary in size from a few millimetres to a five franc piece. Contrary to the prevalent opinion, the induration is sometimes so ill-marked as to be hardly appreciable even by the most experienced examiner. It is usually of short duration, quite superficial, and rapidly disappears under treatment. Syphilitic chancre of the vagina is quite painless, and can be pressed with the speculum without causing any discomfort. According to Ricord, the characteristic adenopathy is found in the groin when the anterior third of the vagina is affected, and in the pelvic glands when the other two-thirds are involved, but subsequent observers have noted that the adenopathy is inconstant. Dr. Lhuillier recommends that in every doubtful case of vaginal ulceration a search should be made for Ducrey's bacillus and the *Treponema pallidum*, and that the Wassermann reaction should be performed every fortnight up to 50 days after appearance of the lesion. If the result is positive, active treatment by intravenous injections of arsenobenzol should be instituted.

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[1] Thèse de Paris, 1923, No. 62.

THE MENTAL INEFFICIENT: "TREATMENT" OR "PUNISHMENT"?

The city of Birmingham has in some measure realised the vision of Dr. A. E. Naish, who, on the opening page of our present issue, forecasts the rôle of medicine in deciding many questions involving moral conduct. In the "Birmingham Scheme"—as it is now frequently called—the justiciary court refers for special medical examination a certain type of delinquent, who can neither be classified as mentally defective nor as insane, but in whom "mental instability is exhibited either by conduct, attitude, or bearing, or oft-repeated commission of the same class of offence or other abnormality"—persons, in short, who cannot adapt themselves to the requirements of civil life. The examination is carried out by two colleagues, Dr. Hamblin Smith, medical officer of the prison, at which special facilities are provided for the purpose, and Dr. W. A. Potts, psychological expert to the justices. The scope of their work has already been outlined by Dr. Potts in The Lancet,[1] and the methods employed in testing the mental capacity of cases referred to them were detailed recently in these columns.[2] The scheme was inaugurated just after the war and the results have proved the value of the experiment, about 150 cases being examined per annum. This number has remained fairly constant, as the justices recognise the difficulty of justifying any indiscriminate remanding of offenders, even if it were thought desirable.

In the report for the year 1922–23 by the two medical officers pointed attention is called to the fact that of the cases specially remanded it was found necessary to sentence only 20 per cent. to imprisonment. Dr. Hamblin Smith continues: "Even when every allowance has been made for the fact that some of the cases would not have been sent to prison in any event, the figures are more impressive than any words as to the immense social value of the scheme. The constant requests which I have had for information, not only from this country, but from all parts of the world, indicate the interest which is taken in our methods, and suggest that the scheme is, as it was intended by its originators to be, a real advance in legal procedure. But our natural satisfaction must not be allowed to cause any relaxation of our efforts, nor must we forget the work which still remains to be done. We must continue to examine as many cases as is possible. Only in this way can we have any prospect of obtaining the knowledge which is so urgently wanted as to the prevention and cure of that social disease which we call 'crime.' We can make no progress unless we study causations, and this study can only be pursued by the intensive investigation of individual offenders. In dealing with any case, a court is quite in the dark as regards the most important factors, until information is before it as to the mentality of the offender. This information can be obtained in no other way than by the use of medical examiners who possess the requisite experience. There is no type of case which is not worth investigation in this way. But I would call attention to two classes of offenders who are specially deserving of patient study. The desirability of the thorough examination of young offenders is now generally recognised, and there is also the offender who commits 'sexual' crimes, in whose case the mental conditions which may be found are varied in the extreme. I would urge that every case of this latter form of offence should be specially examined. I have been greatly impressed with the value of friendly interviews with the younger prisoners; most valuable information can be had in this way, not only as to the particular case, but also as to the causes of delinquency in general. It is to a doctor that the ordinary offender will talk most freely. This fact, for which there are many reasons, is constantly brought before me in my work.

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[1] The Lancet, 1922, i., 1365.
[2] Ibid., July 21st, 1923. p. 112.

"Insane persons have long been regarded as requiring treatment instead of punishment. In comparatively recent years the mentally defective offender has been removed from the ordinary operation of the criminal law. But there are other classes of mentally abnormal persons which are quite well recognised by scientists, and which require treatment on special lines. Recognition of this fact in no way implies that these persons are to be allowed to do whatever they please, without interference on the part of society, any more than is now the case with insane or mentally defective persons. In their own interests, as well as in those of society, persons who suffer from these abnormal mental conditions require most careful treatment. The point is that our present method of dealing with them by imprisonment is inadequate, and, in many instances, futile. The whole problem of delinquency is a psychological one, and when once this is generally recognised I believe that public opinion will call for a revision of our present methods of dealing with offenders."

A little imagination shows the economy of dealing thoroughly the first time with a potential criminal, even if his study involves the examination of a number of cases who ultimately show nothing more than can be discovered by examination in court. "Psychological treatment" is not a synonym for leniency, as many laymen would believe. It represents rather the outcome of the desire to save lives which might be useful to the community, and as such it stands together with all other branches of prophylactic medicine.

THE REGISTRAR-GENERAL'S STATISTICAL REVIEW FOR 1922.[1]

THE issue of Part I. of the chief vital statistics of England and Wales for 1922 within ten months of the year to which they relate is a sign that the Registrar-General's statistical work is tending to function normally once more. Although we regret the failure of the text commenting on these tables to appear simultaneously, the present volume includes information of extreme value to physicians, and especially to medical officers of health. The average experience of the entire country is indicated by the fact that the birth-rate was 20·4 per 1000, a lower figure than in any preceding year except three of the war years; and by the death-rate of 12·8 per 1000, which, with the exception of 1921, is also the lowest on record. The rate of infant mortality was 77 per 1000 births, the lowest rate in any previous year having been 80 in 1920.

Perhaps a chief use of the tables in this report is for medical officers of health of counties and county boroughs in enabling them to compare the relative position of their areas in respect of the chief causes of death. A few extreme cases may be taken in illustration. Among county boroughs the death-rate per million from enteric fever varied from 41 in Blackpool, 52 in Dudley, and 40 in Plymouth to nil in 16 county boroughs, a difference which calls for much serious investigation in the boroughs named, and in others which approximate to their position. The death-rate from respiratory tuberculosis was 611 in Southport and 1250 in South Shields; 681 in Wolverhampton and 1364 in Warrington; 761 in Bolton and 1321 in Liverpool; 732 in Lincoln and 1321 in Manchester. These differences are most striking, and can scarcely be explained solely on an industrial or social basis. Similarly the death-rate per 1000 births from diarrhœa and enteritis under two years varied from 2·85 in Bath to 12·56 in Birkenhead; from 2·68 in Burton-on-Trent to 7·67 in Burnley; from 2·96 in Exeter to 11·06 in Gateshead; from 3·14 in Ipswich to 15·31 in Kingston-upon-Hull. These immense variations call not only for much heart-searching on the part of the local authorities concerned, but for active local investigation on scientific lines, with a view of ascertaining means for reducing the excessive death-rates towards the level of the rates in the more fortunate or better governed boroughs. Similar remarkable discrepancies are seen in the death-rate from puerperal sepsis (per 1000 births). This was 0·92 in Blackburn, but in Bolton was 2·05. In Bradford it was 3·26, in Bury 4·26, and in Chester 4·62, but in Coventry it was only 0·82, and in Darlington 0·66. Are these differences entirely accidental, or can they not be related to differences in the standard of the midwifery service available in the respective areas?

Similar questions suggest themselves when we turn from special diarrhœal mortality to total infant mortality under one year of age per 1000 births. Why should this be 62 in East Ham and 113 in Burnley; why 73 in Warrington, 76 in Huddersfield, and only 61 in Wallasey; why 113 in Walsall and in Wigan, and 70 in Swansea? Factors are complex and difficult of discrimination; but careful comparative inquiry can give indications adequate for reform; and there is no reasonable doubt that the high infant death-rates can be lowered approximately to the level of the lowest rates in the Registrar-General's tables. To point the need for inquiry and subsequent reform is among the chief ways in which our national vital statistics can be made of practical value.

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE thirty-sixth annual meeting of the Fellows and Members will take place on Thursday next, Nov. 15th, at the Royal College of Surgeons of England, at 3 P.M. Dr. Sidney C. Lawrence, the hon. secretary of the Society, has circularised the Members and Fellows of the College resident in the greater London postal district area, urging their presence to support two resolutions to the following effect: First, that the admission of Members to direct representation on the Council of the College is desirable; and secondly, that the President should be requested to make a statement as to the difficulties, legal and otherwise, which prevent such direct representation of Members on the Council. The officers of the Society, in drawing attention to their objects, take the opportunity of protesting against the view that their action is due to a desire to obtain representation on the Council for their own supporters. The circular note indicates that other matters to be brought forward at the meeting will be the absence from official lists of the diploma titles, and the slur upon the status of the Members due to the absence of a hood from academic dress. It is felt that the right of the M.B. of any University to wear a hood upon public occasions creates a distinction which is not warranted. The general objects of the Society may be described by saying that it is desired to arouse and maintain amongst Members an interest in the College, and to obtain a new charter which will give them representation upon the governing body.

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[1] The Registrar-General's Statistical Review of England and Wales for the year 1922 (New Annual Series No. 2) Tables, Part I., Medical. 15*s.*

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XLIV.

THE TREATMENT OF INTERNAL DERANGEMENT OF THE KNEE-JOINT.

INTERNAL derangement of the knee-joint in a large majority of cases means an injury and displacement of the internal semilunar cartilage. This accident may occur at all ages, though it is rare before adolescence; it is naturally more frequent in early adult life during the period of greatest activity. The initial injury is a twisting strain upon the flexed knee. In many cases this initial injury is a severe one, but in some a comparatively slight twist upon a flexed knee when the quadriceps is not on guard may be sufficient. The twisting strain first stretches, or even partially ruptures, the internal lateral ligament; this allows the inner condyle of the femur and the head of the tibia to separate a little, so that the cartilage can displace slightly towards the centre of the joint. It is now liable to be split by pressure between the two bones, and when a split has once taken place the fractured cartilage can then be displaced further. An actual displacement of the cartilage can only take place after a split or fracture has occurred. The most common variety of injury to the cartilage is a split round the margin, leaving that portion of the cartilage which forms a free edge in the joint loose and attached only at its anterior and posterior extremities. This variety of split is often called a "bucket-handle" injury. In some cases such an injury affects only the posterior part of the cartilage; in others it extends completely round the margin. Sometimes, either at the time of such an injury or at some subsequent period, this free portion of the cartilage is torn right across at its narrowest point, there being then one or two free tags of cartilage in the joint. The clinical characteristic of a displacement of the internal semilunar cartilage is that following a twisting strain the knee becomes fixed in a condition of partial flexion with external rotation of the tibia (so-called "locking"), and that this fixed position can only be overcome by a manipulation of the knee by the patient himself or by some assistant. Sometimes a temporary or partial locking of the knee occurs, easily reduced by the patient simply flexing and extending the knee-joint. An acute displacement is usually followed rapidly by effusion into the joint. An occasional incident is the occurrence of a chronic or recurrent enlargement of the bursa between the inner head of the gastrocnemius and the semimembranosus; this appears to be often directly associated with an injury of the posterior part of the cartilage.

Treatment of Acute Displacement of the Cartilage.

When the knee has become locked in a flexed position as the result of a characteristic twisting strain the immediate treatment must aim at a reduction of the cartilage back into its original position, or at least into a position in which it no longer interferes with the free mobility of the joint. In most cases this manipulation will be best carried out under an anæsthetic. The object of the manipulation is to open up the space between the femur and tibia anteriorly and on the inner side, and so to enable the cartilage to spring back into position. The surgeon flexes the knee fully, rotating the tibia outwards, gripping the ankle with one hand and the outer side of the thigh just above the knee with the other. From this position the knee is extended suddenly, the thigh being pressed inwards, the ankle being pulled outwards and kept rotated out; the cartilage will then be felt to return into its position with a snap. When the manipulation has succeeded, the next step is to prevent the formation of considerable effusion or to get rid of any effusion already present. This is best carried out by wrapping the whole of the knee from mid-calf to mid-thigh in a thick layer of cotton-wool and bandaging firmly over this with a domette bandage; the elastic pressure thus kept up will often completely prevent an effusion or promote the absorption of an effusion within 24 or 48 hours. There is no need at this stage to rest the knee—in fact, a considerable amount of exercise is useful, provided that no risk is taken of twisting the tibia on the femur. Steps should at once be taken to keep the quadriceps muscle active and prevent it wasting. Daily faradic stimulation to the main mass of the quadriceps and also to the vastus internus is advisable, together with massage of the knee itself and active exercises of the quadriceps. In carrying out these exercises two points are essential: (1) to restore complete flexion of the knee as tested by the ability of the patient to kneel and sit back on to his heels; and (2) to strengthen the vastus internus. The latter muscle has as its chief function to brace up the inner side of the knee and hold the patella inwards when the weight is being taken upon the flexed knee. The muscle should be specially exercised by making the patient tip-toe and then bend the knees until he is in a squatting position, recovering again to an upright position. As soon as any effusion has disappeared and the knee flexes fully, and the quadriceps muscle is as strong as on the other side, all sorts of general exercise may be taken. It is very common for an injury of the semilunar cartilage to occur with complete displacement and locking and for recovery to be complete without any subsequent similar accident happening. For this reason it is undesirable to operate upon a knee for the removal of a semilunar cartilage which has only been displaced once. When the knee has apparently recovered completely it should be used for every exercise that the patient desires to carry out, and tested in this way to see whether the cartilage is likely to displace again.

Recurrent Complete Displacement.

When displacement of the cartilage recurs in a knee which is apparently sound it is best to decide at once upon the removal of the cartilage. Such recurrent displacements tend to recur with less and less cause; the accident may happen in the course of ordinary walking, and may become a danger to the patient. Moreover, repeated attacks of displacement with locking undoubtedly damage the knee-joint, and sooner or later tend to produce osteo-arthritic changes. The operation for removal of a cartilage is usually carried out with a tourniquet applied to the limb. The knee is flexed at a right angle and allowed to hang over the end of the table, and a vertical incision is made on the inner side about three-quarters of an inch from the inner margin of the patella down to the head of the tibia. The capsule is divided vertically as far as the lowest fibres of the vastus internus and down to just beyond the margin of the tibia. When the joint is opened a hook should be passed under the cartilage, the synovial membrane retracted, and the anterior half of the cartilage then inspected. In most cases where the history is clear a fracture around the margin of this part of the cartilage will be found. The anterior extremity of the cartilage is first detached and a heavy clamp with a tooth at the end affixed to it. The margin of the cartilage on the inner side of the joint is then carefully cut away from the synovial membrane and capsule; the posterior part of the cartilage, if it is not detached may be left in the joint, the split portion being pulled forward and cut away from the sound cartilage posteriorly. In some cases no split is found in the anterior part of the cartilage. When the history is clear this portion must then be detached and pulled upon strongly, the knee being well flexed. The posterior part of the cartilage will then usually be ound to show a split which enables it to be pulled orward quite easily, so that it springs into the centre f the joint (the intercondylar notch); the split ortion can then be cut away posteriorly in this notch. n opening the knee-joint and removing the cartilage he most careful aseptic precautions must be taken, he skin being shut off from the wound, and nothing xcept the extremities of sterile instruments intro-uced into the joint. Care must be taken both in he original incision and in detaching the cartilage ot to divide the internal lateral ligament of the knee. The synovial membrane, capsule, and skin require uture in separate layers. As a rule the wound is utured and the dressing and bandage applied with rm pressure before removing the tourniquet. Pro-ided that healing is uncomplicated, and that no onsiderable effusion in the knee occurs, the joint may be moved and used quite soon after the operation. No splint is used; the wound is looked at on the sixth ay, and if there is no effusion in the knee-joint he patient is at once allowed to get up and walk on he limb. He is encouraged to carry out active movements of the quadriceps muscle; and electrical reatment of this muscle with massage of the knee nd active exercises can be started as soon as the titches have been removed. In a young adult it is ossible to allow a considerable amount of active xercise at the end of a month from the operation. uch forms of exercise as involve risk of twisting—.g., running, jumping, tennis, and football—should e forbidden until the quadriceps muscle has become uite strong; this may be a matter of two months.

Irreducible Displacement.

It occasionally happens that a cartilage has been njured and displaced and has not been immediately educed; it may then be a matter of difficulty to educe it. In any case in which manipulation under n anæsthetic has failed to secure full extension of he joint an operation should be undertaken forthwith, as a cartilage which remains in a displaced position is certain to produce damage to other joint tructures. In old-standing displacements it is as well for the surgeon to arrange to manipulate the nee under an anæsthetic, with permission from he patient to operate if the reduction is not felt to be satisfactory.

Partial Displacement of a Cartilage: Cases Simulating Displacement of a Cartilage.

Patients frequently complain of a knee which gives way under them constantly in a flexed position, often with pain and with occurrence of a subsequent effusion but without any complete locking of the oint. In some of these the knee is apparently normal between the attacks, and it may be taken hat there is probably a small split in the cartilage, he free portion of which is not large enough to get n the way and lock the joint completely. In many other cases an examination of the knee will show that lexion is not really full, and that the quadriceps muscle, particularly the vastus internus, is not as strong as it should be. In all these cases the best nitial treatment is to give an anæsthetic and manipu-ate the knee by flexing fully, rotating out, and then straightening the knee suddenly. Adhesions will often be heard to snap on full flexion of the joint. Following such a manipulation, the electrical treatment and exercises for strengthening the quadriceps already described should be given until the knee s fully mobile with good muscle power. General exercise should then be allowed, and the knee watched o see if any further accident occurs. If it does, an exploratory operation is indicated. In this class of case an X ray photograph to exclude the existence of a loose body is an essential preliminary of treatment.

R. C. Elmslie, M.S. Lond., F.R.C.S. Eng.,
Orthopædic Surgeon, St. Bartholomew's Hospital; Surgeon,
Royal National Orthopædic Hospital.

Special Articles.

THE PANEL CRISIS.

The Minister of Health's Final Offer.

The Minister of Health, accompanied by the Parliamentary Under-Secretary for Scotland, met representatives of the Insurance Acts Committee of the British Medical Association on Oct. 30th and 31st and discussed with them the terms of a new contract with insurance practitioners as from Jan. 1st, 1924. In the result the Minister made a communication as follows:—

Ministry of Health, Whitehall, S.W. 1,
October 31st, 1923.

Sir,—I am directed by the Minister of Health to refer to the discussions which have been proceeding between him, with the Parliamentary Under-Secretary of Health for Scotland, and representatives of the Insurance Acts Committee yesterday and to-day on the subject of the arrangements to be made for a new contract for the insurance medical service.

The Minister, appreciating the importance of an amicable settlement on this question, has given it the fullest possible consideration, and has made every effort in his power to realise the standpoint of the profession and to arrive in negotiation with their representatives at a settlement fair to all parties. In the result he authorises me to make the following proposals:—

(1) He accepts the following formula:—"Medical benefit is, with sickness, disablement and maternity benefits, one of the primary benefits under the National Health Insurance Acts. Other benefits are additional and contingent upon the foregoing beirg first provided. The question, what is the proper amount of remuneration to be paid to the doctors, is one to be determined on its merits by the Government after due inquiry and after negotiation with the representatives of the profession."

(2) An impartial Royal Commission will be appointed to investigate and report on the whole system established under the National Health Insurance Acts, including medical benefit and the remuneration of the practitioner. The terms of reference of this Commission will be agreed with the profession.

(3) Provided the Insurance Acts Committee nominate an actuary of suitable standing, the Government actuary is prepared to meet him in professional consultation with a view to satisfying him that all relevant considerations have been taken into account in arriving at his conclusion as to the maximum which can be charged to insurance funds as from Jan. 1st next.

(4) As regards England and Wales, during the next year a sum of £250,000 will be provided for the mileage fund and to meet other points raised with regard to the rural practitioner by the deputation which recently saw representatives of the Ministry of Health on the subject; the Scottish mileage to be discussed as heretofore with the Scottish Board of Health.

(5) As regards the arrangements for remuneration as from Jan. 1st next, the Minister authorises me to make the following alternative offers:—

(*a*) A capitation fee of 8*s.* 6*d.* to be paid for five years from Jan. 1st next, provided that, if the Royal Commission above referred to during the currency of that period suggests any material alteration of conditions of service, the profession shall be free to reopen the question of remuneration; or—

(*b*) A special court of inquiry will be set up by the Minister as soon as possible and instructed to report on the capitation fee to be paid as from Jan. 1st next. The contract will be made on the basis of the fee recommended by the court of inquiry, the Government undertaking to go to Parliament for the necessary legislative sanction and the profession undertaking to accept the recommendation. The court of inquiry will be asked to report as soon as possible, hearing any evidence tendered on behalf of the Ministry, the profession, the approved societies or other interested parties.

I am to say that the above offer is a final offer, and that it is to be taken as a whole with either alternative (*a*) or (*b*). The Minister hopes most earnestly that the offer may be accepted, and sincerely trusts that the Insurance Acts Committee and the whole body of insurance practitioners will realise that it represents a reasonable and fair basis of settlement under the present circumstances.

I am, Sir, your obedient Servant,
W. A. Robinson.

The Secretary, Insurance Acts Committee,
British Medical Association, 429, Strand, W.C.

The representatives of the Insurance Acts Committee stated that they would submit this communication to the panel committees of the country and afterwards to a special Panel Conference to be held on Nov. 14th.

THE ALLEGED APPROVED SOCIETY "CONTROL": WHAT HAPPENED IN 1911.

Not to prolong or exacerbate controversy but to ensure full realisation of a recurrent danger to peace, it is desirable, even at the risk of wearisome repetition, to bear in mind the early history of the relations between national insurance and the medical profession. From the very beginning it was foreseen that the profession would be prejudiced if the financing of the scheme were managed in such a manner that what was given to the doctors could be construed as something wrested from the approved societies. This was the point with which Parliament dealt fully and finally in 1911.

The best friends of the original National Insurance Bill of that year would hardly claim that either the Bill or the explanatory memorandum which accompanied it paid very marked attention to the medical profession's point of view. As Dr. Esmonde observed in Parliament at the time, the doctors were told to underwrite the health insurance of the country without being consulted as to the premium arrangements. There is no need now to assign praise or blame for what happened in 1911. The Bill was unsymmetrical in its conception. It was largely framed on a German design. But, whereas Germany had had a clean slate on which to plot out its scheme, England had already developed a characteristic voluntary system over a part of the area to be covered. It is the English way to adapt old material in making revolutionary changes, and the machinery of the friendly societies was obviously too useful to be scrapped. But the medical arrangements of the pre-1911 voluntary system—recently described by Sir Clifford Allbutt as "the bad and now obsolete club system, the old practice of pulse, tongue, and bottle"—had not been satisfactory to either side. They contained the element of friction which was the legacy bequeathed by voluntaryism to compulsion. The medical profession, as was clearly stated in Parliament by a responsible speaker (Sir Robert Finlay, afterwards Lord Chancellor), was not prepared to see the "control" which the friendly societies had exercised in the old days not only retained in their hands but even vastly extended. Yet, when the 1911 Bill came to be studied it was at once seen that the opportunity of friction was perpetuated. Clause 13 provided that medical benefit, in the case of members of an approved society, should be administered "by and through the society." It was repeatedly pointed out that the societies thus had a strong interest in cutting down medical remuneration in order to maintain or increase their own profits and to make their benefits more attractive. In replying on the second reading debate Mr. Lloyd George declared that all the criticisms of the Bill had been foreseen and that there was no substance in any of them. The doctors were not being "placed under the heel of the friendly societies" at all. Nevertheless the point was afterwards placed beyond doubt. Dr. Addison's amendment to take the medical benefit administration away from the societies and to hand it over to the local insurance committees (at that stage known as local health committees) found ready support on all sides. Some speakers emphasised the necessity of freeing medical remuneration from the grip of the societies, others the undesirability of entrusting the whole subject of health to private bodies unequipped for its adequate supervision. The Addison amendment was crucial; it was frequently stated that unless the point was conceded it was idle to proceed with the Bill. Mr. Lloyd George took the Government whips off, and the amendment was carried by the overwhelming majority of 387 votes to 14. Consequential amendments were made in Clause 14 of the Bill, and, as thus substantially altered, Clauses 13 and 14 eventually became Sections 14 and 15 of the 1911 Act.

This may be ancient history, but history has its lessons. The lesson of 1911 is that Parliament, on the advice of representative Members of all parties and by a huge majority, did what it could to ensure that, in working the new national insurance scheme, the medical profession was to be free from any suspicion of the societies' control. There was still, of course, a danger that the spokesmen of the societies, obsessed by the now discarded traditions of the old club system, would put their case too high, and, if thei funds were depleted by the grant of large additional benefits or (as in 1922) by external attack, would claim direct power to squeeze the insurance practitioner. This danger has proved only too real. A recent spokesman has described the apparent intentio of the Minister of Health to protect the reasonable remuneration of the doctors as a "misappropriation of trust funds." This impossible language merely shows the need of a clear statement that medical remuneration must be settled on its own merits irrespective of the societies' finances. Sir Alfred Mond, in a speech from which we quoted last week, assured the medical profession that the 1922 legislation made no modification of "existing statutory provisions." In other words, the protection given by Parliament on the Addison amendment in 1911 was not impaired by anything in the Act of 1922. W need scarcely add that there is no reason to suppos that Parliament is of a different opinion to-day. At any rate, if the principle of 1911 is to be overthrown it must be done by the authority of Parliament an not by any form of administrative action.

THE SITUATION IN EAST ANGLIA.

(FROM A SPECIAL COMMISSIONER.)

THE Eastern Counties took no small part in th early days of controversy over contract practic A week-end tour of Cromer, Norwich, Lowestoft, an Yarmouth, and conversations with many doctors, hav proved a liberal education. An armchair study o the problem, with only the written word as a guide is apt to conjure up a picture of the panel doctor a a unit, as impersonal in the discharge of his studie as a railway clerk or porter. It is only by travellin from place to place and listening to the experience of many doctors that a correct opinion can be formed not merely of the panel service, but of the men behin it. The very status of panel practice varies greatl in different parts. Lowestoft and Yarmouth, fo example, lie cheek by jowl geographically. Bu practically every doctor in Lowestoft is on the panel and about every other doctor in Yarmouth will hav none of it.

It is obvious that the standing of such a youn service as that of the panel must suffer when, in town like Yarmouth, many of the most respecte doctors will not work in it. However efficient th panel doctors may be in such a town, the demonstrative abstention of many of their colleagues put these panel doctors in an invidious position. I would have been unnecessary to labour this rathe painful point did it not have a certain bearing on th present crisis. If half the doctors in a town lik Yarmouth will not go on the panel when the conditions and rate of remuneration are as at present is it not probable that, if the panel service is to b modified in a manner distasteful to the medica profession, many of the doctors who now are a credi to it will give it up?

Take the case of the doctor with a large privat town practice, a hospital appointment, and speci knowledge of one branch of his profession. When all th men of this class in a town are on the panel, receivin perhaps only a few hundred pounds apiece from i the reputation of the service in such a town is eno mously enhanced, and its efficiency is increased i more ways than one. Now it is just this best typ panel doctor that the service has a precarious hold n. The young doctor who has recently bought a large nel practice is in a position to be sweated, and ere is no knowing to what level he could be reduced. ut the men of standing, experience, and ability are a position to say: "We will work in this service ly under conditions enabling us to give of our best. we are harassed by wrangling and shifting conditions service, we will return to a practice which is entirely on-panel."

This desire for a settlement of a more or less ermanent character is patent everywhere. Most anel doctors, if they must perforce decide one way the other, seem to prefer the Minister of Health's rst to his second alternative for the sake of peace, hatever their opinions as to the adequacy or adequacy of the terms. The gamble is greater in e second alternative. Most doctors, being very usy, have no taste for a gamble of this kind; they refer a gilt-edged security with a comparatively w rate of interest to speculative investments which eed watching and must be a constant source of istraction from their work.

"It is an ill wind . . . .," and it is to be hoped that this crisis gives birth to a Royal Commission with omprehensive terms of reference, many much eeded reforms will be adopted. The man in the treet, whose information is obtained only from the y press, is apt to conclude that reforms are, indeed, rgently needed, but that they must be solely of the ature of concessions from the medical profession. he size of panels must be reduced, freer choice of octors must be provided, better surgery accommoation must be found, and so on. But the aforesaid an in the street has no conception of the number of oints where the shoe pinches the doctor himself. any of these points are trivial, but their cumulative ffect is to be found in the 94 per cent. of resignations. ere is an instructive, perhaps typical case. A anel doctor takes a short but much needed holiday. e spends half of it in bed with the "flu." But those ays in bed are in some senses happier than the days pent at home in his panel with its endless routine f minutiæ. In addition to the dull, slogging, clerical ork there is the emergency night work—the sudden all coming on top of routine duties. May it not be ossible for a Royal Commission in consultation with the man on the spot" to simplify the clerical work f the panel doctor? A panel doctor your Comnissioner interviewed was convinced that the endless otes he has to make on unimportant cases are not nly useless but mischievous; they obscure the ecords of important cases, and it is impossible to see he wood for the trees.

To discuss in detail every grievance of the panel doctor would be impossible in this article. There re troubles in connexion with dispensing, and in seaside towns like Yarmouth and Lowestoft there is the difficulty of the insured visitor. Then there is the newcomer who may be in the district for years before he bethinks him of his card and brings it, or having meanwhile lost it, does not bring it, to a panel doctor who is at a loss to know whether he is treating an insured or uninsured patient. There is also the difficulty of the panel doctor who happens to have spent time and money on acquiring special skill in a particular branch of his profession. If the patient is to be free to change his doctor at shorter intervals than at present, this special knowledge may be tapped to the detriment of its possessor by the insured person going on the panel of an eye specialist one week and on the panel of a throat specialist the next. In a large town like Norwich, with more or less wholetime specialists not on the panel, and with few specialists on the panel, this point is of little significance; but it is not so in a small town like Lowestoft. A system of National Insurance which does not give adequate encouragement to panel doctors, as such, to specialise is surely imperfect. There is also the knotty problem of mileage, and a town like Cromer, with a large country district to serve, feels strongly on this point.

To return to the Minister of Health's alternatives, (*a*) and (*b*), your Commissioner did not hear one word in praise of the latter. The general attitude of panel doctors in East Anglia towards these alternatives might be summed up in the saying that: "The devil you know is better than the devil you don't know." This unknown, or at least uncertain, alternative would seem to have been put forward to add much needed charm to the first alternative by sheer force of contrast. The first alternative may not be palatable, but just look at the other! Taste it! Having done so, you find your palate so blunted that the unpleasant taste of the first alternative is hardly noticed. Emphatic endorsement was voiced with regard to the point raised in this connexion by Dr. Cox—that it is not usual to suggest that a party to a dispute should accept a reduction in remuneration pending the report of an inquiry.

It is not as premature as it may seem at first sight to touch on the future, five years hence. A doctor with a 2000 panel put the matter like this: "We have gone into the whole question carefully, and with our eyes open have deliberately sent in our resignations. We may, perhaps, on the advice of our leaders accept a reduction, and do our best to carry on for the next five years. But a further reduction at the end of this period will mean that breaking point has been reached."

It would not be fair to end these notes without a reference to the appreciative comments made as to the conduct of negotiations at headquarters. The representatives of the panel doctors enjoy the reasoned confidence of practically every doctor who touched on this subject with your Commissioner, and the leaders may be assured of appreciative loyalty from the rank and file in this area.

THE MOTOR EXHIBITION AT OLYMPIA.

(By Our Medical Motoring Correspondent.)

The outstanding feature of this year's exhibition at Olympia is the marked decrease in prices for all exhibits, coupled with increased value for money; prices, in fact, are almost on a lower level than before the war. The manufacturers have achieved this result through concentrating on the reduction of expenses, rather than on the production of a large number of different models. The present prices are based on an expected larger output. I believe many makers are adopting extreme measures to retain a footing in the trade and to meet foreign competition. At all events, the public is the gainer, so it is to be hoped that prospective car owners in return will encourage home industries by purchasing the products of British factories.

Six-brake Cars and Cushion Tyres.

Since putting forward my views last week[1] I have had the opportunity of examining most of the exhibits in detail, and my impression is that revolutionary innovations find no place in this year's display. In fact, as predicted, the only exceptional points are front wheel brakes and cushion low pressure tyres. The Rolls Royce Company are now fitting the former to their cars, and are doing so in addition to the ordinary four brakes. A specimen of the "six-brake" car is not shown, but all cars bought after a certain date will have the extra brakes fitted free of charge. The Talbot Darracq, Sunbeam, and Unic among others fit them now as a standard feature. The Talbot Darracq is exceptional in that it is almost the only car the price of which has not been reduced. It is now supplied with magneto ignition and priced at £495.

I have nothing to add to my remarks of last week regarding front wheel brakes and the new tyres; a further view has confirmed my list of cars that should be inspected. In addition to those previously named, the Hillman at £350, the 9 h.p. Hampton at £275, the new Unic, with a specially designed " body " for the doctor, and sold by Messrs. Mann and Overton of 10, Lower Grosvenor-place, should be considered. Among the lighter models the Bayliss Thomas Coupé, listed at 300 guineas, is worthy of note. Of the cars enumerated last week, the 12 h.p. Austin has been reduced in price to £375, and the 11 h.p. Standard now costs £230. The 12 h.p. Sunbeam is turned out for the reduced sum of £570, and is excellent value for this money. In fact, at the above figures, all the cars mentioned are, in their respective spheres, tempting investments. I might even go further and suggest that whichever make is chosen the purchaser will not meet with disappointment, if he takes due care of his property.

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[1] The Lancet, Nov. 3rd, p. 998.

Catering for the Owner-driver.

In considering the care of the car I might mention that those who are not keen on undertaking a periodical overhaul themselves could with advantage consult the Light Car Maintenance Co., of 3A, Elm-road, Camden Town, who specialise in that class of work. A good many manufacturers provide a similar service, either at their own factory or through their agents. Those considering the purchase of a car out of income may be interested in some of the schemes proposed by Messrs. Offord, the coachbuilders, of Gloucester-road, Kensington. This firm also specialises in body work for the profession. Intending purchasers are certainly faced with an excellent choice of coachwork. The cult of the all-weather car has many followers, and the latest models include the added comfort of side curtains which open with the doors, and are not merely buttoned on. Adjustable front seats and pedals are another improvement bound to be appreciated by those who sit at the steering-wheel. Messrs. Barker and Co., Windover, Ltd., and Hooper and Co., among others, show carriage work which in design and colour is a delight. Those favouring the saloon body may be interested in the specimens shown on the Humber stand.

Many visitors were attracted to the galleries, and especially to the section given over to the tyre manufacturers. Messrs. Dunlop and Michelin both have produced tyres of larger cross-section, which thus holding an increased volume of air at a correspondingly reduced pressure, give a marked increase in cushioning capacity. They are not easy to fit on old cars, as they usually (on account of size) need additional clearances. Where desired, this is being arranged for on new cars. Messrs. Michelin fit these tyres on the ordinary beaded rim; Messrs. Dunlop use inextensible wired edges, and a special type of rim to retain the tyre in position.

Tyre Trouble Eliminated.

Among puncture proof devices, the Adey seems likely to give satisfaction. It is an inner tube, much thicker than the ordinary type, and it has in addition a light internal coating of a special rubber compound, which seals any puncture. Another solution is offered by the Jeff tube, the inside of which contains many rubber flaps; if a nail pierces the tube it pushes one of the flaps aside. When the nail is withdrawn, the pressure of air forces the flap back into position, and so closes any hole. At Messrs. Harvey Frost's stand many vulcanisers were on view. They certainly help to preserve the life of a tyre, especially the covers. A cut filled in and vulcanised may extend the existence of that cover for many months; ordinary stopping may, of course, stay in, but as a rule it does not. A properly vulcanised repair is much better. Until the advent of the self-starter we were all slaves to the crank handle, now such labour is of the past, but tyre inflation requires almost as much energy. This can be avoided by an engine-operated pump inflator, which is connected up to the engine, taking the place of one of the sparking plugs. The engine is run, and in about four minutes the tyre is fully inflated, an indicator showing when the correct pressure is reached. Another boon is the spare wheel, or, what is even better, the Warland dual rim. The undoing of a few nuts permits the flange to be lifted off, and a rim carrying an inflated tyre to be substituted. A simple ratchet is employed to expand the rim, and thus allow a gap piece to fall out, and the tyre is then easily removed.

Comfort and Efficiency.

Further exploration of the galleries revealed many other interesting novelties both for luxury and utility. I have at times had artillery wheels which became loose, so if possible I usually now advise Sankey wheels, which for tightness and power of resistance are eminently satisfactory. At the Zenith stand there were sectional examples of the working and adjustment of what is undoubtedly an ideal gas producer. In some cases, where two or more people drive the same car, it is often found that the controls are out of reach for one of them, and cushions must be used to obtain a comfortable position. To obviate this, Messrs. Mann Egerton have introduced a pedal extension, which can be put on or detached in a moment. They also show an ingenious car heater, in which the temperature is obtained by filtered warm air pre-heated by radiation. The danger of dazzling headlights has produced an enormous number of anti-glare devices. The best solution offered seems to be a contrivance, manufactured by Messrs. Brown Bros., Ltd., which causes the headlights to dip at the driver's will. Windshield cleaners are also shown in numerous patterns. I believe mechanical cleaners are better than the preparations for treating the screen, in overcoming the nuisance of fogged glass. Some of the contrivances are worked off the engine, others by electricity. A most efficacious one is the Dekla, operated by hand only. This firm has also a girderscope driving mirror which can be easily clipped to the pillar of the windscreen, and gives a very wide rear view. Among rear screens the Auster and Beatonson provides full protection and comfortable travel under all weather conditions. Many firms specialised in lubrication and were keen to discuss both that subject and their oils. There can be no question, if one wishes to obtain not only the greatest efficiency from an engine, but also the maximum life from the working parts with a reduction in wear and tear, lubrication of the working parts is the most important consideration. Well-known brands of oils, such as the Shell-Mex, the Vacuum Oil Co., and the Newton Motor Oil can be relied on. Cheaper oils sold in bulk may prove much dearer in the long run. It is a true saying that a motor engine may pay more in friction tax than in any other direction.

Insurance against Loss and Damage.

The prudent motorist is, of course, well advised to see that he is fully insured against all risks and at the White Cross, Car and General, Premier Motor Policies all information on this important subject could be obtained. Insurance to secure payment for hire of a vehicle during repair o insured one, as well as against theft of professional apparatus left in the car, seems worthy of consideration; also the previous fixing of replacement value of car in the case of complete destruction or loss.

Now that the winter is approaching the radiator muff shown by Messrs. Brown Bros. supplies a useful want, as does also an arrangement to maintain the temperature of the garage and thus avoid running the water off every cold evening. A Norton motor stove or a safety-lamp answers admirably. The Lodge priming plug, which permits of the easy introduction of petrol or ether into the engine greatly facilitates starting in cold weather. Among other good plugs shown are the K. L. G., Hobson, and Champion. Foot-warmers, an instarter device, various jacks, Parsons's non-skid chains, tyre-pressure gauges, automatic traffic warners, as well as clocks, watches, mascots, horns, car locks, &c., offered strong temptations to the buyer of moderate means.

THE WORK OF THE LEAGUE OF REMEMBRANCE (1914–1919).

HOSPITAL SUPPLIES ON A VOLUNTARY BASIS.

THE anniversary of Armistice Day is an appropriate ime for calling attention to the activities of the eague of Remembrance. The work of the voluntary ssociations in providing for the needs of the sick and ounded during the war has been freely recognised ; is not so generally known that such work is till being carried on in aid of civilian hospitals, elfare centres, and similar organisations, by the eague of Remembrance at 1, Marlborough Gate, ondon, W. 2.

The League, which is the direct descendant of the avendish-square depôt and the Mulberry-walk urgical Requisites Association, was founded to be a ving memorial to those who fell in the war, and to erpetuate the spirit of service which united the ation during the time of supreme trial. During the ar the sense of obligation to the community grew nd was organised, and a great deal of fluid energy nd goodwill received the training and discipline ecessary to harness it to the public weal.

Before the close of hostilities it had become vident to far-sighted observers that, if a means could e found to employ in the service of peace the energies o freely offered in war, it would be to the permanent ood of the community. A movement was inaugurated at Cavendish-square, largely at the instigation f the late Duchess of Albany, to carry on the work of ospital supply. A scheme was prepared under the ractical direction of Mrs. E. H. Gibson, C.B.E., the ead of the Cavendish-square depôt, and sanction as obtained from the Charity Commissioners to apply he funds in hand to the initial outlay. The scheme as further laid before the heads of the Mulberry-alk Association and, animated by a like desire to nd some means of establishing a memorial of perpetual ervice, they added their surplus funds to the capital vailable for establishing the League. A house was aken, suitably equipped, and opened by Princess eatrice, President of the League, on June 28th, 1920, nd under her patronage and guidance the work f making hospital equipment has gone steadily orward.

Requests from hospitals, welfare centres, and ublic nurseries, totalling 571, have been answered, vith the result that some 11,500 garments, from hrouds to surgeons' coats and baby clothes, have been nade. Over 370,000 surgical dressings have been repared, and, as the facilities offered and as the work lone becomes better known, the demand constantly ncreases. The procedure is simple. A hospital ends to the League headquarters such materials s it wishes to have made up, with a pattern ; the eague undertakes to do the work, and to deliver it vithin two months entirely free of charge. Incidentlly, the pattern is the hospital's affair ; the League akes no responsibility for that. As to the quality of he work the League has a high standard of excellence hat is rigorously maintained. At the head of each vorkroom is a salaried "sister" (always the widow r dependent of an officer fallen in the war) who is esponsible for the work done, and who must inspect nd pass every garment made in her room by the oluntary workers before it is sent out.

The supply of surgical dressings, in which the eague takes particular pride, has a definite reaction pon nursing, in that in many cases it relieves nurses rom the somewhat arduous task of "replenishing tock" at the end of the day. As long as it does not nterfere with the curriculum of training, the assistnce that the League gives to the nursing profession s most valuable. To cope with the ever-increasing olume of work the League requires a great many oluntary workers, and in consequence, the importance f social hygiene, the needs of hospitals, and the vork of welfare centres is constantly brought to the otice of a large number of women, who thereupon become propagandists and missionaries in the cause of public health. In this connexion a library has been founded and is shortly to be enlarged, in which official publications, such as reports of the Ministry of Health and authoritative bodies dealing with nursing, child welfare, preventive hygiene, &c., will be available, and may be expected to prove of great educational value.

The League workers, moreover, accustomed to the prompt and careful execution of orders, form a body whose services in the event of emergency, such as an epidemic, would be immediately available. During the recent small-pox outbreak application was made to the League for vaccination pads, which were at once supplied. In a graver emergency a like promptitude would be of the utmost service. In order that the work of the League may be kept on sound and up-to-date lines an advisory committee of medical men periodically review and criticise the progress of the work.

The personnel of this medical advisory board includes: Sir Frank Colyer, Sir Alfred Fripp, Sir Robert Hill, Sir Robert Jones, Sir Alfred Keogh, Sir William Arbuthnot Lane, Mr. John Murray, Mr. Leslie Paton, Sir James Purves-Stewart, Sir Alfred J. Rice-Oxley, Sir Hugh Rigby, Mr. C. Knox Shaw, Mr. H. J. F. Simson, Sir Joseph Skevington, Sir Arthur Sloggett, Mr. Herbert Smale, Mr. R. C. Jocelyn Swan, Dr. H. Campbell Thomson, Dr. Kate Marion Vaughan.

The Committee of the League welcomes suggestions that may increase its usefulness. It has on occasions placed its rooms at the disposal of organisations wishing to hold meetings on subjects connected with the national health and well-being. The present premises barely suffice for the work undertaken, and a scheme is in preparation for the endowment of a permanent establishment devoted to the making of hospital requisites on a still larger scale. It is proposed to raise a sum of £30,000 for the endowment and permanent establishment of the League, and for this purpose donations are invited.

A NEW X RAY DEPARTMENT AT WEYMOUTH HOSPITAL.

ON Nov. 3rd, at Weymouth, a new and well-equipped building, erected to the memory of the late Dr. James Miller, for many years on the staff of the hospital, was opened by Sir Humphry Rolleston, supported by Dr. A. E. Barclay, of Manchester. Mr. Clark, chairman of the hospital, presided at the opening ceremony, and referred briefly to the recent improvements which had been carried out in the hospital building. The new wing was then formally opened by Sir Humphry Rolleston, the text of whose speech is given on p. 1065 of this issue of THE LANCET.

Dr. Rodier Heath, the medical officer in charge of the X ray department, briefly outlined the progress of X ray work in the town, and said that when he first came there there was only a small 10-inch coil and an old dipper interrupter, but the work had grown, and it was found that a larger and more modern installation had become a necessity if this important and ever-growing branch of medicine was to be carried out in a proper manner. Unfortunately the present-day financial straits had made it very difficult to secure the necessary funds, but through the generosity of the late Dr. Miller's mother, and to friends, together with some £3200 raised by fêtes ably organised by Mrs. Sanderson-Wells, it had been found possible to build and equip the department, which he had no hesitation in saying was such as would enable him to carry out all kinds of X ray work thoroughly and efficiently. Dr. Heath then thanked Sir Humphry Rolleston and Dr. Barclay for the stimulus they had given to the work of the department. To Dr. Barclay, in particular, he owed a debt of gratitude. For many years Dr. Barclay had shown him great kindness in allowing him to study the methods of the X ray department at the Royal Infirmary, Manchester.

Dr. Barclay, in reply, congratulated Dr. Heath on the new installation. He then gave a brief outline of progress as exemplified by his own department at the Royal Infirmary, Manchester, where he had been working since 1908, at which time he only had one small room and a dark room in which all the work was carried out. Development had gradually taken place, and the work had increased by rapid strides, until the department had become what it was now with its many sections and nine sets of apparatus, including two for intensive treatment. He went on to say that he was convinced that great progress had already been made with this treatment, and that it was not too much to hope that by its means many forms of cancer could be cured, and also light thrown on the causation of this disease. He quoted one case in particular of which he had skiagrams showing a pelvis, riddled with sarcoma, and the condition now showed that the diseased bones had been entirely replaced by healthy tissue, and instanced many other cases where irradiation was of proved value. Work of this kind required a very high degree of skill, and should only be in the hands of experts.

In seconding a vote of thanks to the speakers, Dr. James Macpherson Lawrie referred in touching terms to his late colleague, Dr. Miller.

The department includes a large radiographic and screening room, which is lighted by three large windows fitted with wooden roller blinds, a treatment room for therapeutic work, and the usual dark rooms and office. The apparatus consists of a large oil-immersed "Snook" transformer, fitted with auto-control and time switches, which gives an output of 80 milliampères, a rotary converter for heating the Coolidge filament, and a 16-inch coil for therapeutic work. These were supplied by Messrs. Newton and Wright. There is also a screening stand couch, and a special table fitted with a Potter-Bucky diaphragm, and various tube stands and accessories, all of which were supplied by the Cox-Cavendish Electrical Co. The erection of the apparatus and designs were carried out by Mr. T. H. Escott, of Weymouth.

MEDICINE AND THE LAW.

Unjust Censure.

Several remarkable statements appear in the report of an inquest on the body of a married woman, 35 years of age, who apparently threw herself and her 18-months-old child into the Thames on some date between Oct. 13th, when she disappeared with the child, and Oct. 22nd, when her body was recovered. The dates are important, for it emerged from the evidence that the depression which culminated in suicide dated from a visit to the Battersea General Hospital, where she was told, after an X-ray examination, that she was suffering from tuberculosis of the spine. The date of this examination is not stated, but it must have been prior to Sept. 4th, when the patient attended the Brompton Hospital for confirmation of the report. This confirmation was not forthcoming, for, after further X ray photographs had been taken, the radiologist at this hospital stated that there was no disease in the cervical spine, and this information naturally relieved the patient's mind. Though it was more than five weeks after this second consultation that the woman disappeared, the coroner and the jury took the view that the previous diagnosis was the indirect cause of the suicide, and censured the hospital accordingly for "great indiscretion." Had the original diagnosis of caries of the fifth and sixth cervical vertebræ been established post mortem, which it was not, we presume that no censure would have followed. So long as diagnosis is an incomplete science, often upset by post-mortem evidence, it seems hardly fair to blame a hospital for an error of diagnosis per se. As to the alleged indiscretion, if the hospital authorities had good reason to suppose that the patient was afflicted with cervical caries, surely it would be in her interest to inform her of the fact in order that she might seek appropriate treatment. This brings us to the extraordinary pessimism of the coroner on this point. He is reported to have said "that for a person to be told that she was suffering from tuberculosis of the spine was almost like pronouncing sentence of death." Surely the prognosis of a young adult who undergoes treatment in a modern institution such as the M.A.B. hospital for cases of non-pulmonary tuberculosis for adults at Lowestoft (St. Luke's) is not so bad as this would suggest. This hospital having only been opened in May, 1922, end-results may not be available, but Rollier states definitely of the Leysin clinics that the prognosis of surgical tuberculosis is not less favourable in adults than in children, and F. Langenskiöld has recently reported from Helsingfors good results in 70 per cent. of his cases of cervical spondylitis. The coroner and his jury seem to have been unduly impressed with one side of the tragedy and not to have taken other possibilities into account. For example, it was presumably pain on account of which the patient originally went to hospital, and if this pain, as it turned out, was not of organic origin nothing is more likely than that the patient was of unstable mentality. The difficulties of medical treatment are likely to increase if an opinion based on careful investigation and X ray photograph is liable to be held responsible for an impulsive action committed weeks after the patient's mind had been set at rest by a subsequent reassurance.

Poor Persons, the Law, and Medicine.

The President of the Divorce Court recently called attention to the fact that a well-known K.C. and an equally well-known member of the junior bar were appearing before him without fees on behalf of a petitioner who was a charwoman, and who was assisted by a firm of solicitors who equally acted for her as for a "poor litigant." "These facts deserve to be known," said Sir Henry Duke. "The subject has been publicly discussed lately, and there is at the present time much doubt whether the existing arrangements for facilitating the settlement of matters of this kind for poor persons could be carried on." The medical profession, to whom gratuitous assistance for the poor is no new thing, are of course aware that a movement for giving legal help to the poor in the civil (not in the criminal) courts was started by the legal profession some years ago. It has never, however, as far as we are aware, become in any way general, so far as lawyers are concerned. In the medical profession men of the greatest eminence, as well as those in the ranks of general practice, are constantly aiding their humble neighbours, and are sometimes held up to obloquy for endeavouring to obtain even a modified fee for so doing. A medical witness who refuses to give evidence on behalf of a patient until he is paid for doing so is denounced as greedy, when the lawyers on the same side are not treating the patient as a "poor litigant," but are paid for their work. If barristers and solicitors wish to institute a system through which the poor may profit by their services, they should organise it on a wide basis. The fact that two eminent barristers have appeared together in a case, in which, probably, far less distinguished counsel would have produced the same result, is but a small step in that direction.

Tests of Intoxication.

At the Central Criminal Court a man named Wilmer 35 years of age, was tried upon an indictment charging him with causing bodily harm to two women when in charge of a motor-car by "wanton driving or other wilful misconduct," and was acquitted. The accident had occurred in a crowded part of the city in the afternoon, and the defendant, after being taken to a police station, was medically examined by Dr. R. T. Edwards who deposed that his face was flushed, his speech was ightly slurred, the pupils of his eyes were dilated, nd that his breath smelt very strongly of beer; he ould walk about the room, but when "toeing the line" aggered for the first yard. The Romberg test was pplied, and the defendant swayed more than would e expected in a sober man. Dr. Edwards, in cross-xamination, declined to admit that the symptoms hown were those of a man suffering from shell shock nd neurasthenia.

Sir W. H. Willcox, called for the defence, had xamined the defendant in consultation with his usual edical adviser, and had come to the conclusion that e suffered from shell shock and neurasthenia. He dded, in reply to questions, that he did not regard any of the tests applied at the police station as sts for drunkenness. They were tests for nervous isease. The dilatation of the pupils, he said, was only nportant in extreme cases of alcoholism. It was a ommon mistake at hospitals to regard the smell of lcohol as proof of drunkenness. The "toeing of the ne" test appeared to have resulted in the defendant's avour, and the Romberg test he regarded as for ocomotor ataxia and of no value in cases of alleged runkenness. It may be added that the defendant eclared in the witness-box that he had asked at the olice station for another medical man to be sent for nd that this had not been done, that he had claimed here to be sober and protested against his treatment, nd that he had only drunk that day a pint of raught beer in the course of a bread-and-cheese ncheon. He had, however, had very little experience f driving a motor-car. He had been out two or three imes with an instructor and had apparently held a icence for driving a motor-cycle in 1909.

In comment it may be observed that the tests pplied for drunkenness at police stations are very requently attacked in police courts in doubtful cases, nd that, if possible, tests should be devised of generally dmitted value and not likely to be questioned and iscredited. It need hardly be added that apart from ny question of shell shock or neurasthenia, the more rowded parts of London are not suited for drivers hose experience is limited to three or four trips with n instructor. Mr. Wilmer was, no doubt, perfectly ober but, apart from his case, it is to be remembered y all drivers that an amount of alcohol less than hat which would cause "drunkenness" in the popular ense may impair any man's judgment in a moment f emergency in a crowded street, and contribute to a erious accident.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh: The Care of the Convalescent, a New Departure.

THE opening of the first unit of the new Astley-Ainslie Institution on Oct. 20th by Lady Susan ilmour marks a new departure in the conception of onvalescence. Mr. David Ainslie, of Costerton, Midlothian, who died in 1900, left the residue of his very considerable estate for the purpose of founding an institution to be known as the Astley-Ainslie Institution, for the benefit of convalescent patients from the Royal Infirmary of Edinburgh. He directed that the funds should accumulate for 15 years for this purpose. The specified time elapsed in 1916, but, owing to war conditions, nothing in the nature of building could be done at that time, and the funds have been allowed still further to accumulate, so that the governors of the institution have now at their disposal about £600,000. Four houses have been acquired in the Grange Loan district with some 25 acres of ground, and these, when fitted out, will provide some 150–200 beds. The present unit has 34 beds. There is a resident medical officer and a trained staff. This institution is the first of its kind in this country or even in America. The existing convalescent home at Corstorphine is intended only for walking cases—for those, as it were, well on the road to complete recovery. Hitherto medical men have confined their attention chiefly to disease in its more or less acute stages and to a lesser extent to its prevention, whilst the gradual return to complete and normal health has been allowed to take place with little or no medical supervision. In a circular sent round to all the wards in the Royal Infirmary the aim and intention of the governors is stated thus:—

> The governors have decided to receive patients whose period of convalescence is likely to be prolonged, and/or who require continued institutional treatment and supervision, whereby recovery will be definitely hastened. . . . The governors are desirous that the opportunities afforded by the institution for the scientific study of the process of convalescence from different diseases should be systematically utilised, and they would welcome the coöperation of the members of the staff of the Royal Infirmary in suggesting and directing lines of investigation towards this end. It is hoped that the scientific study of the processes underlying recovery of health after illness may lead to improvement in the methods employed in the treatment of the convalescent stage.

Briefly, then, the importance is recognised of more adequate medical attention in convalescence and more scientific study of its processes. To the attainment of this desirable end the Astley-Ainslie Institution is dedicated, and Edinburgh is proud to be the first adventurer in this important field of medical work and knowledge. None can fail to see the great possibilities of the scheme for the improvement of the nation's health and efficiency. The more rapid recovery from disease and disablement, involving a smaller loss of working capacity, is of immense economic importance to the country, as is also the more complete recovery which should prevent much further disease and debility. More accurate and thorough study of convalescence may be expected to lead to advances in these directions and at the same time, not improbably, to considerable increase in our knowledge of the ætiology of many diseases.

University of Edinburgh: Election of Assessors to the Court.

Sir Norman Walker was elected on Oct. 25th to the University Court in place of Sir George Berry, who has had to retire owing to the pressure of his Parliamentary work. It has long been the custom that two out of the four Assessors to the Court should be medical men, Dr. Mackenzie Johnston being the other at present serving in this capacity. Sir Norman Walker and Dr. Mackenzie Johnston have many distinguished predecessors, amongst whom are numbered Sir Patrick Herron Watson, Sir Joseph Bell, and John Duncan.

University of Glasgow.

Students' Welfare Fund.—The week is marked by great University activity on behalf of the Students' Welfare Fund. Like other non-residential Universities and Colleges, that of Glasgow has, for the greater period of its existence, suffered from the lack of corporate life. Blame must to some extent be laid at the door of the national temperament. Academic honours open up more lucrative fields for their holders; too little attention has been given to the development of culture and character. The experiences of the war have drawn the attention of teachers and students alike to the broader issue; and to no faculty is the question more important than to that of medicine. The scheme includes the provision of hostels, larger unions, and adequate playing-fields, and the sum aimed at for this purpose is £150,000. Of this £70,000 have already been raised. Two hostels have been equipped; a new women's union has been bought and equipped; the playing-fields have been put in order, and plans for a new pavilion are under consideration. On Nov. 8th–10th the University staged a great bazaar, to be opened on successive days by Viscount Novar, the Lord Rector (Lord Birkenhead), and the Principal. The King and Queen accorded their patronage.

General Council.—At the half-yearly meeting the General Council approved a draft ordinance, which provides for the pensioning of principals and professors at the ages of 70 years and 65 years respectively. There was a good deal of discussion over the imposing of an age-limit. In summing up the matter, the Principal pointed out that young assistants would accept academic posts the more willingly if they knew that such an ordinance offered them greater possibility of promotion.

Glasgow Royal Infirmary: The Lister Ward.

The Council of the Incorporation of Architects in Scotland at their last monthly meeting decided to lodge a petition with the managers of the Royal Infirmary of Glasgow in favour of the retention of the Lister ward in the infirmary, thus supporting the action of the French Academy of Medicine and other continental societies. The appeals which have been presented to the managers, as published in the *Glasgow Herald* of Nov. 3rd, are signed not only by leading Glasgow citizens in every walk of life, but also by many distinguished members of the medical profession in England, America, France, Germany, Switzerland, and Denmark.

A charity matinée in aid of the building fund of the Glasgow Hospital for Diseases of the Ear, Nose, and Throat was given in the Pavilion Theatre this week. The theatre was granted by its directors, and artistes from various music-halls in the city contributed. Of 37 wards in the city, the Blythswood ward, under whose auspices the matinée was held, is the eighth or ninth to contribute to the support of the scheme.

The first meeting of the Glasgow Northern Medical Society was held recently, when Dr. A. Muir Crawford opened a discussion on Diabetes, with Special Reference to Treatment by Insulin. Drs. W. A. Allan, J. Donald, A. J. Hutton, R. Grieve, J. Todd, and Joseph Glaister took part in the discussion.

Out of a total of 390 panel practitioners in Glasgow 368 have resigned.

Aberdeen Medico-Chirurgical Society.

A clinical meeting of the Society was held on Nov. 1st, Dr. Alexander Ogston, the President, in the chair. Dr. W. F. Croll showed: (1) A child of 8 years with her heart on the right side. The electrocardiogram showed that the case was not one of dextrocardia, but the lung condition did not appear sufficient to explain the displacement; (2) a case of aortic stenosis with delayed conductivity and endocarditis lenta. Dr. Anne Mercer Watson and Dr. A. G. Anderson demonstrated two cases showing the late sequelæ of encephalitis lethargica which presented the syndrome of a mid-brain lesion. Dr. H. J. A. Longmore showed a case of acroparæsthesia—a man of 63, complaining of pain, swelling, and stiffness of the hands and lower half of both forearms while at rest; there was no alteration in sensation and the general physical examination was negative except for a persistently high blood pressure; the condition was relieved by active muscular movement. Treatment by vasodilators and other means, including high-frequency, had been without result. Dr. Longmore pointed out that the case was apparently the converse of intermittent claudication, and suggested as the diagnosis acroparæsthesia associated with vascular degeneration. Prof. Ashley Mackintosh read a note on a case of Brown-Séquard's paralysis of traumatic origin.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Victoria Hospital, Belfast.

THE present session opened on Oct. 23rd, when there was a large gathering of students and of the medical and surgical staff. Mr. A. B. Mitchell, the chairman of the staff, presided, and in introducing Mr. Andrew Fullerton congratulated him upon his recent appointment to the Chair of Surgery in the Queen's University, and expressed confidence that he would fully maintain the high traditions of that chair. Prof. Fullerton, after welcoming the students, spoke of the motives which might prompt the choice of medicine as a career in life. Its financial rewards were in most cases on a modest scale. The profession suffered from injurious competition, and its prestige was often lowered by the conflicts of medical opinion. But for those who recognised its possibilities, it offered a career which could fully satisfy ambition. The pursuit of scientific medicine, the discovery of knowledge, the prevention of disease, the relief of suffering—these were its aims, and in the course of the prosecution of such ideals could be obtained the gratitude of fellow men, and just influence in society. Surgery had in recent years occupied a dominant position, but it was now being pressed hard by the bio-chemist, the radiologist, and the clinical pathologist. Medicine was making vast strides. The discovery of insulin had opened a new era in the treatment of diabetes. Radiology had not only thrown light upon many abdominal conditions, but had illuminated the brain, and advanced into the sphere of therapeutics. It gave some hope of the alleviation or cure of some forms of cancer. The treatment of wound shock had advanced far beyond the outlook in pre-war days. These results were the fruit of international coöperation in medical science, and it was the duty of all to recognise the fraternity of medicine. A provincial hospital must be regarded as a unit in a world-wide association. Research was a matter in which the general practitioner should play his part. Edward Jenner in past times and James Mackenzie in recent years had been general practitioners. The student must study and record his cases with industry and care, and regard his clinical notes as something more important than helps to pass his examinations. A hospital would be known by its records. In conclusion, Prof. Fullerton referred to the long and valuable services which Prof. T. Sinclair, who had become consultant surgeon, had rendered to the hospital and the medical school. He also congratulated Prof. W. W. D. Thomson on his recovery of health, and Dr. H. P. Malcolm on his appointment as assistant surgeon. A vote of thanks to Prof. Fullerton for his able address was passed on the motion of Dr. W. Calwell, seconded by Mr. J. A. Craig.

The staff of the hospital held their annual dinner in Thompson's Restaurant on Oct. 23rd. The staff was fully represented, and the following members of the consulting staff were present: Sir Walton Browne, Prof. Sinclair, Prof. J. A. Lindsay, and Dr. T. K. Wheeler. Opportunity was taken to make a presentation, in the form of an oil painting, "Littlehampton Harbour," by B. W. Leader, R.A., to Prof. Sinclair on his retirement from the active staff. Mr. Mitchell, who presided, referred to Prof. Sinclair's long term of office as professor of surgery in the Queen's University and surgeon to the Royal Victoria Hospital. To his influence and example the great developments of surgery in Belfast and the north of Ireland were in large measure due, and his personal character had been a great asset to the profession. Tributes to Prof. Sinclair's work and qualities were rendered by various speakers, and Prof. Sinclair suitably replied.

The Irish Dental Association.

A year ago the Irish branch of the British Dental Association became an independent body under the title of the Irish Dental Association. On Nov. 3rd, at the Shelbourne Hotel, Dublin, the association inaugurated its independent career by a dinner, when about a hundred members and guests were present. The President, Mr. J. Cockburn, was in the chair, and the Governor-General was principal guest. The President and Dental Secretary of the British Dental Association were present as guests to convey the good wishes of the parent body to its offspring. Among the other guests were the Minister for Local Government, the Vice-presidents of the Royal Colleges of Physicians and Surgeons, and the President of University College, Dublin. The Governor-General, in a happy and cordial speech, spoke of the pleasure it had given him at the recent opening of Parliament to anticipate as a measure of public health the dental care of school-children throughout the Free State.

Correspondence.

"Audi alteram partem."

CENTENARY OF THE LANCET.

To the Editor of THE LANCET.

SIR,—Permit me to congratulate you on the entenary number of the London LANCET. This ournal was the handbook of my father during his life ime, and my brother and myself have taken it since ve have practised medicine. It is one of the most ighly valued publications in the library of the Mayo linic. We have on the shelves in bound volumes the omplete series.

Believe me, very sincerely yours,
Rochester, Minn., Oct. 22nd, 1923. W. J. MAYO.

To the Editor of THE LANCET.

SIR,—Allow me to congratulate you and your olleagues not only on the occasion of your Centenary, ut also on the splendid way in which it was commemorated by your Centenary number. It is, of ourse, a truism—but nevertheless a pleasant one—o repeat that in America, as elsewhere, THE LANCET s esteemed as one of the few great medical journals of he world, and it is correspondingly satisfactory to ee it flourishing so vigorously in its youthful old age.

As assistant editor of the *American Journal of Medical Sciences*, which celebrated its Centenary in 1920, may I be permitted to express the wish that THE LANCET may long continue to play its important ôle in interpreting medical thought to the medical rofession of the world.

I am, Sir, yours faithfully,
EDWARD B. KRUMBHAAR.
Assoc. Prof. of Pathology, Univ. of Penna.
Philadelphia, Oct. 20th, 1923.

To the Editor of THE LANCET.

SIR,—The Provincial Board of Health, Toronto, possesses an unbroken bound file of THE LANCET since 1861, and it is with great pleasure that I offer you most hearty congratulations upon the contents and general appearance of the Centenary supplement, filled, as it is, with a most interesting story of the progress of medical science of a century. No journal on this continent approaches the journal in the value and reliability of its weekly contents. May the next 100 years be even more successful than the last!

I am, Sir, yours sincerely,
JOHN W. S. MCCULLOUGH,
Oct. 22nd, 1923. Chief Officer of Health.

To the Editor of THE LANCET.

SIR,—May I add my tribute of congratulations upon the completion of the first century of a brilliant record of scientific work by your journal? I am only expressing the opinion of many of those engaged in the pursuit of research in obstetrics and gynæcology who have gained much stimulation and help from THE LANCET. You and your journal have done inestimable service in keeping up our British standard of scientific truth and excellence in medicine.

I am, Sir, yours faithfully,
Nov. 5th, 1923. A. LOUISE MCILROY.

To the Editor of THE LANCET.

SIR,—The editorial committee of the *Bristol Medico-Chirurgical Journal* hope that the editorial staff of THE LANCET will accept their very hearty congratulations upon the completion of that journal's hundredth year, and they trust that THE LANCET may continue in robust health, and may celebrate very many happy returns of its birthday.

I am, Sir, yours faithfully,
ARTHUR L. FLEMMING,
Bristol, Oct. 31st, 1923. Editorial Secretary.

To the Editor of THE LANCET.

SIR,—My heartiest congratulations on the occasion of the Centenary of THE LANCET. I send my greetings to the editors, proprietors, and managing staff of the paper. To them is due the immeasurable reputation that THE LANCET enjoys throughout the world where medical science is revered. THE LANCET is known not only where English is spoken, but wherever there are patients and doctors. Its articles and leaders being translated into all written languages, it is known to almost all medical men. THE LANCET has achieved in the first 100 years such a popularity and such a great responsibility that its name stands as familiar to all cultured men. Scarcely a day passes without a reference to THE LANCET in lay journals. In respect of a new medical discovery many lay journals, before forming a critical judgment, wait until THE LANCET has commented on the matter, knowing the weight, authority, and truthfulness of THE LANCET'S opinion.

I hold many posts, but of none of them am I so proud as of my pleasant connexion with this "great power" in medical journalism, as

YOUR BUDAPEST CORRESPONDENT.
Nagyvarad, Transylvania, Oct. 17th, 1923.

THE ACTION OF ALCOHOL ON MAN.

To the Editor of THE LANCET.

SIR,—Your review of Prof. E. H. Starling's book hardly does justice to its significance. From the evidence given in this book Prof. Starling is "convinced," as he says in the preface, "that in a civilised country such as ours the abolition of all alcoholic beverages from among our midst, even if carried out by universal consent, would be a mistake and contrary to the permanent interest of the race." It is "written from the purely scientific standpoint," and is intended for lay as well as professional reading. In consequence, a good proportion of the author's own chapters is occupied with an exposition of the elementary physiology of the various systems of the body. There is no attempt to survey the literature and there are no references which would guide the curious and critical reader to original sources. This is a pity, for though the publicity agents of "the Trade" will no doubt be content to hammer Pussyfoot with "Prof. Starling says" (and the teetotallers to hit back under the same authority if they can anywhere find a useful brick), there will probably be a certain number who would like to look further into the details, and the bibliography appended to Prof. Raymond Pearl's appendix deals only with a limited part of the subject.

The first 13 chapters (pp. 1–168) deal with the physiological and psychological effects of alcohol, its use as a food, its absorption and metabolism, the results of excess, and so on, and give a very readable account of generally accepted truths; the gist of them is that alcohol is a narcotic acting on the different levels of the brain from above downwards successively as its concentration in the body increases. Dr. Hutchison (pp. 177–182) gives an uncritical statement of the experience of a a physician on alcohol as a medicine in which its virtues in a variety of diseases are extolled and no mention is made of any disadvantages which may be experienced or precautions which should be taken. Sir Frederick Mott (pp. 183–212) takes an interesting survey of the relation of alcohol to mental disorders, pointing out that its ætiological importance in insanity has been a good deal exaggerated owing to the failure to recognise that persons with an inborn psychopathic tendency may become antisocial with quantities of alcohol which would have no effect on normal people. Finally, Prof. Pearl (pp. 213–286), in a contribution of a much higher critical order than the rest of the book, presents a detailed examination of the relation between alcohol and mortality, largely based on new data collected in Baltimore.

Prof. Starling's argument in favour of the moderate use of alcohol—for frankly once he passes beyond the statement of physiological fact he is arguing a case—is shortly that there is no evidence that it does anyone any harm and that he finds the evening meal is much jollier with it than without. Fortunately, he is clear as to what he means by moderate (p. 174); none on an empty stomach, 12 c.cm. of absolute alcohol or a glass of beer or a wineglass of claret with your lunch, and with your dinner 35 c.cm. or half a bottle of light wine, a pint and a half of ale, three ounces of whisky or a quarter of a bottle of port will not alter a man's powers of comporting himself with propriety; on occasions, indeed, "another little drop wouldn't do you any harm," but the rash man who takes the equivalent of 70 c.cm. is warned that he may be aware of it next morning. This is truly moderation; many a "moderate drinker" would call it abstinence, and few will want to dispute the conclusion that such quantities are in themselves almost or quite physically harmless to the individual who consumes them. Whether they are in fact without some slight effect is really almost impossible to determine. Prof. Starling himself says categorically that the quantities defined may be taken throughout adult life without interfering with bodily health or efficiency and appeals to Pearl's statistics. These show that the expectation of life of the "moderate and occasional drinkers" is probably a little better than that of the "total abstainers," while the "heavy and steady drinkers" have at all ages and in both sexes a far higher mortality. Prof. Starling (p. 157) parodies this into the summary that "any advantage as regards increased expectation of life lies with the moderate and occasional drinkers rather than with the total abstainers," and has apparently overlooked Pearl's explicit statements (p. 243) that while "total abstainers" include only those who have never taken any alcohol at all, "the person who made it a regular habit to take wine or beer with meals, even though the amount so taken was never excessive, was placed in the 'heavy or steady drinkers.'" Starling's moderation is therefore different from Pearl's, and the habits, unexceptionable in genteel circles in this country, defined by him as quite safe on pp. 174–5, would, in the Baltimore schedules, put a man into the most alcoholic category, the high mortality of which is the main fact brought out quite clearly in the figures. The "heavy and steady drinkers" no doubt included also many instances of gross excess, but the average wages earned were about the same in all three categories which suggests that the proportion of what in our English way we should call really heavy drinkers was not very high. The statistics, therefore, neither support nor refute Prof. Starling's proposition. He gives no other evidence in its favour. But it is one which is quite likely correct and is certainly easy to believe.

The second part of the argument is that a moderate amount of alcohol is actually beneficial because it paralyses the highest levels in the brain, anæsthetises a man from his worries, takes off some of his controls and inhibitions, and promotes good fellowship; the day's work is smoothed off by a placid evening and a good night's sleep and all is in better trim for going on again the next day. So impressed is Prof. Starling with the virtues of alcohol at the evening meal that the brilliant statement of them on p. 76 is supplemented by additional commendation in three other passages (pp. 99, 113, 154). In comment I can only say that though the book is, as the preface says, "written from the purely scientific standpoint," I do not believe that these particular observations have been adequately controlled. The day's work over, a clean cloth, flowers on the table, a congenial companion, and a good meal are all mixed up with alcohol into a jumble of variables. It is, in fact, quite common for teetotallers to have the same joyous experience without the alcohol with the same pleasant result, including the dance. As to the necessity of alcohol at the big dinner party, it is at least possible that no quite sane man would put up with such affairs, unless he was partly anæsthetised, any more than a Scotsman will eat a haggis without some raw whisky to cover up the taste. "The dull depression or the forced merriment of a teetotal party"—I assume that this is a correct summary of sufficient experience—are beside the point. They may be dull because there is no alcohol or because the people involved are inherently dull. Teetotallers as a class are apt to be a queer and cranky lot, and no serious student would pretend to measure the effect of moderate drinking by comparing total abstainers with abstemious drinkers as they have existed in this country in the last 20 years. Spontaneous wild drinking and complete abstinence are each associated with a particular make-up of body, soul, and spirit, as Prof. Starling points out himself (p. 158), and he will surely realise that in comparing teetotallers with average men he is trying again to deal with several variables at once. However, even if his argument will not bear any critical examination, it is easy to allow that Prof. Starling represents a common experience; dinner is pleasanter with alcohol than without.

The moderate use of alcohol is therefore beneficial. From which the author proceeds to the conclusion that national abstinence by common consent would be a mistake. A great many people would agree with him in believing that life would be a more meagre experience without alcohol, and their opinion, like his, would in most cases be founded on wholly inadequate data. Many of them would realise with him that the excessive use of alcohol "is the cause of a large amount of disease, crime, misery, and inefficiency," and that to a use which in common judgment is by no means immoderate is due a mass of stupidity, indecency, and unkindness which the world could well do without. And when they come to strike a balance of the pros and cons, some of them are content to lose their alcohol for the sake of the weaker brethren. Prof. Starling is not; he is not even content to let everyone give it up by universal consent. As befits a great university teacher, he believes that alcoholism is to be cured by improvements in education and social conditions. And meanwhile, under the influence of precisely graduated doses, young men will continue to unburden their souls at the dinners of the Physiological Society, and old men will rashly promise donations to hospitals, and the teetotallers will sit in their dull depression.

The book is unworthy of its author. With the exception of Prof. Pearl's contribution, it contains nothing new, and the general state of physiological knowledge of the effects of alcohol on man was at least as fully, if less vivaciously, stated in the 1918 report of the Liquor Control Board, which could, I think, be had for 1*s.* instead of 12*s.* 6*d.* The reasoning is slipshod and the final conclusions, drawn from "the purely scientific standpoint," have no more "scientific" validity than the impressions of the man in the street; they would be equally "unscientific" if they were the reverse of what they are, and it would be equally a pretence to dress them up as the necessary deductions from precise physiological knowledge. Prof. Starling's verdict may or may not be correct; my point is that if it is, it has been arrived at by intuition or prejudice or some other accessory to practical life; it is not the result of any evidence which he sets out.

I am, Sir, yours faithfully,

Nov. 5th, 1923. A. E. Boycott.

CHLORATE OF POTASH IN ENURESIS.

To the Editor of The Lancet.

Sir,—In the valuable article, No. XXXV. i your series on Modern Technique in Treatmen (Sept. 8th), by Dr. Hugh Thursfield, the write says he cannot tell why chlorate of potash shoul be useful in enuresis. Some 20 years ago I saw in the "Year Book of Pharmacy" that a larg percentage of chlorate of potash passed unchanged int the urine. I have consequently always been alert t recognise that we affect the mucosa of the urinar tract when we exhibit chlorate of potash by mouth. Again, the fact has been ever present to me on applying the indican test to a sample of urine, lest by potassium chlorate in excess it should fog the indican test, giving a negative reaction instead of a positive one.

I am, Sir, yours faithfully,
J. BARKER SMITH, L.R.C.P.
Herne Hill, S.E., Nov. 1st, 1923.

THE RESULTS OF MAMMARY CANCER OPERATIONS: A COMBINED INQUIRY.

To the Editor of THE LANCET.

SIR,—The Medical Society of London have appointed a committee of surgeons to investigate the later results of operations for cancer of the breast. The scope of the inquiry at present is being limited to cases of patients who are known to be alive not less than ten years after the primary operation for undoubted cancer. A preliminary inquiry has already brought to light the existence of a number of such cases, and the Society is therefore encouraged to make a wider appeal. The committee would be obliged if any medical practitioner, who has not already been approached, having personal knowledge of any such cases would communicate with the hon. secretaries of the Society.

We are, Sir, yours faithfully,
T. P. LEGG,
F. LANGMEAD,
Hon. Secretaries, Medical Society of London.
11, Chandos-street, Cavendish-square, W.,
Nov. 1st, 1923.

THE ALBUMINURIA OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—I did not know before reading Prof. F. Cook's letter in your issue of to-day that at times the albuminuria of pregnancy may be of uni-renal origin. He mentions one case in which "urine from the left kidney was loaded with albumin," whilst "that from the right contained the merest trace." The idea is quite new to me; the occurrence, presumably, must be attributed to structural peculiarities, such as Dr. J. W. Russell (in your issue of Oct. 27th) adduced in explanation of his cases of unilateral œdema affecting the lower extremities. In pregnancy, with the rise of the intra-abdominal pressure, such factor for the first time must have come into prominence, otherwise the albuminuria must be imputed to have existed before. It is interesting, however, to observe that so far in his observations, the albuminuria of pregnancy is more usually bi-lateral, "although in several instances . . . very considerably more albumin" has been found coming from the left than the right kidney. From this it is plain that if the course of the left renal vein (from the renal hilum, across the spine in front of the aorta to the cava), and its disposition (at right angles) associated with the lordosis—natural in advanced pregnancy—is the cause of the greater leakage of the left kidney, since on the right side such factors are absent and yet albumin in the right renal urine occurs, such disposition cannot be the only or the pre-eminent factor in the albuminuria of pregnancy.

It was supposed by those who did me the honour of discussing my paper on Eclampsia and Its Incidence at the Royal Society of Medicine (1921)[1] that in advancing a mechanical explanation of eclampsia, I was simply reverting to Lever's idea (1843). Lever supposed that puerperal convulsions occur because the kidneys become inefficient from obstruction of their veins. My idea is quite different: it is that the blood-flow through the renal *capillaries* is obstructed and ultimately stopped by the physical changes which occur in some cases of pregnancy. I came to this opinion from my study of the levator ani muscles. I saw that these muscles act simply as a pressure-resisting mechanism, and that the pressure they help to sustain is essential to normal metabolism. In man, with a persistent diminution of this pressure, we get a diminished metabolic rate with resulting weakness—physical and mental (neurasthenia)—whilst with its too great increase, as occurs at times in pregnancy, the excretory organs (liver and kidneys) are prevented from functioning efficiently by circulatory obstructions. These, in my opinion, explain eclampsia; the fact that in the albuminuria of pregnancy no "definite deviation whatever from the normal, with the possible exception of œdema" occurs, does not vitiate this explanation; it supports it. The occurrence of such albuminuria without any sign, "clinical" or "biochemical," of deviation from the normal is in line with my conception; it is just what we should expect. But no one can believe that with albuminuria the kidneys are normal, even though a return to normal should subsequently occur. With treatment the albuminuria of pregnancy passes away, without it the change in the kidney and liver not uncommonly proceeds to that disorder of which a blood change is the natural result, and convulsions the only expected ultimatum.

The publication of Prof. Cook's inquiry, when completed, will be looked forward to with expectation. Whilst thanking him for referring to his work at this early stage, I venture to warn him of the danger of imputing the albuminuria of pregnancy to mechanical causes; such can only lead to the belief that eclampsia itself is similarly caused.

I am, Sir, yours faithfully,
R. H. PARAMORE, F.R.C.S. Eng.
Brook-street, W., Nov. 3rd, 1923.

THE LISTER WARD IN GLASGOW ROYAL INFIRMARY.

To the Editor of THE LANCET.

SIR,—The inherent courtesy of Dr. Freeland Fergus's letter to THE LANCET of Oct. 27th almost disarms criticism. None the less, may I venture to think that the real issue is, after all, the ever-recurring old-time issue, what to destroy and what to conserve—the claims of the past and the needs of the present. These, indeed, frequently conflict, but when there exists the desire there is sometimes found also a middle way wherein very often these issues may be reconciled. In this instance, on the one hand, there dominates the unique and immeasurable value of the famous ward; and pertinently thereto, may I quote part of a letter of Oct. 13th from Colonel Washburn, director of the Massachusetts General Hospital, U.S.A. Writing of the old operating room of his hospital where, on Oct. 16th, 1846, ether was first given to full surgical anæsthesia, Colonel Washburn says: "This room is kept as a surgical shrine, which is of great interest and value to the medical profession of America, and we hope to the medical profession of all the world." Of how much relatively greater value is the Lister ward? Sir Thomas Oliver, of Newcastle-upon-Tyne, who has just returned from visiting the hospital named, told me that a memorial lecture is delivered in the theatre once in each year. Dr. Albert J. Ochsner, writing by the same mail from Chicago in favour of preservation, concludes his letter: "I believe that the sentiments expressed represent the feeling of the surgical profession the world over, and I sincerely hope that your argument may have the result of retaining the Lister ward." When Admiral Sturdee was lately in Glasgow, seeking funds for the preservation of Nelson's old ship, the *Victory*, he uttered words apposite also to the Lister ward: "It's value for recruiting purposes, for encouraging the sea instincts of the race, and as an inspiration for the future as well as a memorial of the past, is beyond all reckoning."

On the other hand, it is, of course, at once and readily admitted that the real infirmary requirements of to-day hold their own important and essentially necessary place. What, however, these requirements are, and the manner in which it is proposed to meet them, are known only to the infirmary managers and staff; but

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[1] THE LANCET, December, 1921.

I may venture the opinion after almost 50 years' experience of planning, that given goodwill and the desire to meet the various needs and interests, I have never once seen a planning problem that could not be solved. A new and even great dispensary will, within measurable time, become obsolete and require replacement, but the Lister ward properly envisaged will become of increasingly greater value as the years come and pass away. It may have been, and I believe was, the original intention of the managers to remove the ward and leave the site open; but to build upon the site as is now proposed must be an afterthought, for the original elevations do not show any such purpose or intention. Why, then, this sudden change? The Lister ward occupies the very narrowest angle of the ground proposed to be utilised for the new dispensary, and, therefore, might surely and not unreasonably be spared. To build upon this small portion of ground is to go back also upon the managers' own original argument against the retention of the one-storey Lister ward—viz., "that it would to some extent interfere with the free circulation of light and air to the new buildings." If, therefore, not one but two-storey buildings are proposed to be erected upon the site of the ward, surely the evil alleged will only be intensified; and it may respectfully be asked, Do the new buildings proposed solve the managers' difficulties in the best, or, indeed, in the only possible way? Lord Rosebery once aptly summed up the matter in a somewhat analogous case when he affirmed, "What is wanted is not an engineer to condemn, but an engineer to preserve."

May it not be that the managers are somewhat obsessed with the idea "of a new and thoroughly up-to-date dispensary for the out-of-door patients," to which all other things must be sacrificed? Monuments of "historic interest" may not directly help towards the "alleviation of sickness and distress"; but they go a very long way, alike in being and inspiration, to the encouragement of others in the benign service of humanity, whether that service is rendered by individuals or by the staffs of great institutions. These monuments remain sermons in stone and ringing trumpet calls, animating to great deeds, long after the human voice of the preacher or leader has passed away. In surgery, are such buildings not the battle emblems of the great army of healers, impelling to emulation in sacrifice and heroism; in arduous, always beneficent, and often dangerous work? Wherever, in the many places in which Lord Lister carried on his researches, even from student days in University College, London, it yet remains that the Lister ward is the one and only place in which these researches actually and first touched suffering humanity. It was in the very ward which it is to-day hoped to preserve that the hopelessness, the despair, and the agony, not only of the patients in the ward, but of suffering humanity throughout the wide world first saw the morning dawn of hope, relief, and life.

With all deference, and sincere deference, to Dr. Freeland Fergus's position and views, is he not in his loyalty to his colleagues valiantly reasoning to try by just a little to make the worse appear the better cause—hence, his many and obvious perplexities? In his heart I think he agrees with me, that the real question is not the erection of a great dispensary, but whether the Lister ward is to be regarded as at best but a pertinent of the Glasgow Royal Infirmary or as a great national and world memorial and heritage.

I am, Sir, yours faithfully,
JAMES A. MORRIS.
Ayr, Oct. 31st, 1923.

THE WORK OF THE TUBERCULIN DISPENSARY LEAGUE.

To the Editor of THE LANCET.

SIR,—There are several passages in the introductory remarks to the report on the work of the Tuberculin Dispensary League in THE LANCET of Nov. 3rd (p. 984) to which I might fairly take exception; but I am sure that everyone knows that in a highly controversial subject the knocks on gives and takes are not the real thing that matter and should not be allowed to obscure it.

May I hope that our pamphlet may be now rea as a commentary on the report rather than as a attack upon it, and that all who are interested i the check of tuberculosis will read both together, an form their own conclusions as to the efficacy of D Camac Wilkinson's method. Particularly I woul refer them to Dr. Stobie's figures, printed as a appendix, which are altogether outside the con troversy. I am quite willing to reprint it with an reasonable modifications desired.

I am, Sir, yours faithfully,
RANDALL DAVIES.
Cheyne-gardens, S.W., Nov. 5th, 1923.

VICTOR HORSLEY LECTURE: THE LATE PROF. JOHN MARSHALL, F.R.S.

To the Editor of THE LANCET.

SIR,—I am sorry my old friend, Sir John Tweed should think that my remarks about Marshall we cruel and intended to disparage him. My intentio was simply to compare him and Lister, and I cou not help making the comparison into a contrast, pointing out what a serious mistake was made by th Council of University College in preferring his clai to those of Lister. That Marshall was a good surge of the old school, that he was of the highest characte and had a charming and gentle personality, all wh knew him would agree. But the fact remains that h failed to appreciate the new surgery introduced b Lister, which was enthusiastically taken up by th younger men, such as Marcus Beck. It is not want disparagement to say this, merely the truth. Marsha was by no means alone; I doubt if a single seni surgeon in London adopted Lister's methods f many years after they were promulgated.

I am, Sir, yours faithfully,
E. SHARPEY SCHAFER.
Edinburgh, Nov. 6th, 1923.

PRIVATE WARDS IN LONDON HOSPITALS

To the Editor of THE LANCET.

SIR,—In reference to the article contained in th last issue of THE LANCET I am writing to point o that the Victoria Hospital for Children has priva wards containing a total number of 14 beds. Visit may attend daily. By opening this home the co mittee believe that they are supplying a much-need want, and that many parents will be glad to secu for their children the treatment, nursing, and oth advantages of a leading institution. The home adjacent to the institution, which itself is situated the quiet residential district of Chelsea, and the priva wards overlook open grounds many acres in exten There is a separate kitchen and kitchen staff. T terms are £1 per day or £5 5*s*. per week. Wh admitted the patient must be under the care of consultant of one of the recognised hospitals of Lond The attendance of the hospital's resident medi officer is free of charge.

I am, Sir, yours faithfully,
D. ST. JOHN BAMFORD,
Secretary, Victoria Hospital for Children,
Chelsea, S.W.
Nov. 5th, 1923.

*** We welcome the information contained in th letter. The list given in our last week's issue purport mainly to show what accommodation in private wa was available for adults.—ED. L.

NEW YORK LARYNGOLOGICAL SOCIETY.—T coming celebration of the fiftieth anniversary of the found of this society, which will take place on Nov. 15th, co memorates an event of unusual interest. As far as can learned, this organisation, now the Section in Laryngol of the New York Academy of Medicine, is the oldest soci in existence of the department which it represents. connexion with the celebration there will be an exhibit representing the important contributions made to progress of laryngology in the city of New York.

Obituary.

PETER WALLWORK LATHAM, M.D. CAMB., F.R.C.P. LOND.,

LATE DOWNING PROFESSOR OF MEDICINE IN THE UNIVERSITY OF CAMBRIDGE.

WE regret to announce the death of the venerable Prof. Peter Wallwork Latham, senior Fellow of the Royal College of Physicians of London, which occurred at Clifton on Oct. 29th, a few days after his ninety-first birthday. With him passes a great physician, teacher, and personality; double first in class lists, university professor, consulting physician, and keen pathologist, he was throughout his very prolonged life an outstanding figure in the medical profession.

Latham was the eldest son of a Lancashire general practitioner, and went while quite young to the University of Glasgow, whence he obtained a scholarship at Gonville and Caius College, Cambridge. There he graduated as a wrangler, and in the following year divided with Prof. George Henslow, the eminent botanist, the honour of composing the first class in the Natural Science tripos. He then studied in Germany, and for a brief period was assistant physician to the Westminster Hospital, but quite soon, and some 60 years ago, he returned to Cambridge as Fellow of and medical lecturer at Downing College, being at the same time elected physician to Addenbrooke's Hospital and University reader in medicine. In 1874 he was appointed Downing Professor of Medicine, a chair which he held for 20 years.

His association with Downing College was long and fruitful. On his election to the Society the College was in a very bad way. Sir George Downing, a local baronet with an odd family history, had left a will directing trustees, failing the establishment of next of kin, to purchase land and erect a college at Cambridge bearing his name. The will was made in 1717 and was proved at his death in 1749, when the relatives were dead without issue, and the trustees were all dead also. Profuse litigation resulted. It was not till 1769 that a judgment was obtained that the trusts should be carried into execution, but the estates were in the possession, illegal it would seem, of the devisees of Downing's widow, and the charter for the College was not obtained until 1800, 83 years after the will was made. Starting in such circumstances and with the estate immediately crippled by building, the College nearly died before it lived; practically no undergraduates matriculated, and the College consisted of two or three Fellows and a group of Fellow-commoners. Latham, upon election as a Fellow, devoted time and great business capacity to the drafting of new statutes, thus bringing the College up to a good position in the University, while the establishment of professorships in law and in medicine secured from the beginning the adherence of a certain number of distinguished men.

Prof. Latham's association with the Royal College of Physicians of London was very close and distinguished. He became a Fellow in 1866, and 20 years later was elected to the Council, being the first provincial physician to serve on that body. In that year he delivered the Croonian lectures, taking as his subject the pathology of rheumatism, gout, and diabetes. These lectures, which were published in our columns, endeavoured to indicate the changes in the nervous system, the blood, and the tissues which may take place in the three diseases, and their text was furnished by a suggestion from Sir James Paget that "disturbance in the nervous system in some form and part may be regarded as a fact in every case of gout." Applying similar generalisations to rheumatism and diabetes, Latham illustrated his theory of their pathology with far-reaching clinical references and in particular with elaborate chemistry. He was a Censor of the College in 1887–89, and in 1888 was appointed Harveian Orator, when his oration, which was published in THE LANCET,[1] was a highly interesting plea to working pathologists to search out the secrets of medicine by way of experiment. He paid his tribute to Harvey by dwelling upon the latest advances in pathological knowledge, saying that they had been gained by the simple, patient investigation of nature which Harvey had pointed out as the guiding principle of all genuine seekers after truth, and his philosophic discourse was well calculated to quicken the spirit of investigation.

Prof. Latham was in practice in Cambridge for half a century, and on leaving the city in 1912 received a remarkable series of presentations from the medical men in the neighbourhood. He was twice married, first to the daughter of John McDiarmid of Dumfries, by whom he had two sons and one daughter, and secondly to the daughter of the late Dr. J. F. Bernard of Clifton. Prof. Latham's daughter, who survives him, is the wife of Lord Clyde, Lord-Justice-General of Scotland, but his two sons predeceased him, one, a soldier, dying from injuries received at polo, the other being the late Dr. Arthur Latham whose great loss to British medicine we have recently sustained.

PERCY WHITTINGTON SAUNDERS, M.B. TORONTO, F.R.C.P. LOND., M.R.C.S. ENG.

Dr. Percy Saunders, who died on Nov. 1st, had already been ill for some time, when a flare-up of his disease about six months ago necessitated complete rest from his numerous activities. Born in Toronto in 1877, Saunders took his B.A. degree in that city in 1898 and his M.B. in 1902, when he also gained the gold medal. Coming to this country in pursuit of extended knowledge and experience, he worked for some time at the London Hospital and took the M.R.C.S., L.R.C.P. diploma in 1905. He also held several appointments at the Victoria Park Chest Hospital and at the Shadwell Children's Hospital. He then went to the National Hospital for Paralysis and Epilepsy, Queen-square, where he was first house physician and resident medical officer, and later registrar, being afterwards appointed on the staff as assistant physician. He was also physician to the Royal Free Hospital and was elected F.R.C.P. in 1917. He was an excellent teacher and a hard and industrious worker; the strain imposed on him during the war, when he was often doing two or three men's work, must have made excessive demands on his strength, and probably undermined his resistance and paved the way for the onset of his fatal illness. Naturally modest and retiring, Saunders was not a man of many friends, but those who knew him well soon recognised, beneath his quiet and somewhat deprecatory manner, the sterling character of the man, and the solidity and soundness of his judgment in medical matters, founded as it was on a wide and deep acquaintance with clinical medicine and medical literature. His hospital rounds were marked by a wise deliberation and by great kindness to his patients. His early training had also imbued him with classical knowledge and a taste for classical literature, and although he did not write much, what he did write was characterised by clear thinking and lucid and tasteful expression.

Dr. Saunders will be greatly missed by colleagues, students, and patients alike, and much sympathy is felt with his parents in their distant home, all the more in that they lost another son in the war.

WILLIAM HALL, M.R.C.S. ENG.

THE death of Dr. William Hall, at the age of 89, took place recently at Headingly. Seventy years ago he began his professional career as apprentice to Dr. Samuel Radcliffe, of Leeds. After studying at Leeds Medical School and Guy's Hospital, Dr. Hall became M.R.C.S. and L.S.A. in 1855. He was for some time lecturer on midwifery and diseases of women and children in the Leeds School of Medicine and Surgery, and a surgeon at the Leeds Hospital for Women and Children. He was the founder of the Leeds Barefoot Mission which preceded the "Boots for the Bairns"

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[1] THE LANCET, 1888, ii., 1715.

Fund, and long before the question of feeding necessitous school-children was raised in Parliament he was a pioneer in this work. His work as a factory surgeon in the "seventies" made him familiar with the needs and requirements of child workers, and one of his great objects in life was concern for the improvement of the health and physique of children. Retiring from active practice in 1902, the next ten years of his life were devoted to a continuation of his efforts for the promotion of the social well-being of the community. In 1905 his practical effort found expression by supplying 60 poor school-children with half a pint of milk and a bun each day, much to the improvement of their health, and later on the scheme was extended, so that breakfasts and dinners were supplied to 100 school-children. Within a short time he raised £1000 for this purpose, and thus anticipated by 15 years both the medical inspection and the feeding of school-children by the State. Dr. Hall leaves two sons and one daughter; the elder son is Dr. Robert H. Hall, of Leeds, who succeeded to his father's practice, and the second son is Mr. John Basil Hall, honorary consulting surgeon to the Royal Bradford Infirmary and President-elect of the British Medical Association.

THE LATE DR. G. D. MAYNARD.

WE briefly noted last week the untimely death at Johannesburg of Dr. George Darell Maynard and the loss entailed to statistical medicine. Dr. Major Greenwood writes:—"The news of Dr. Maynard's death is very grievous. He was unquestionably one of the foremost medical statisticians in the world, and a paper published as recently as last March[1] showed that, although he was no longer able to devote the whole of his time to research, we might expect a long series of important contributions from his pen to statistical science. Maynard not only had a thorough grasp of mathematical principles (as shown in a joint paper by himself and Dr. Troup on a very technical point of mathematical theory), but great critical powers. His earlier work on the statistics of anti-typhoid inoculation, and more recent studies of pneumonia, were good examples of the application of statistical canons of criticism. In his work on cancer and diabetes a flair for original investigation was manifest. Maynard's demonstration of a high correlation between the death-rates of cancer and of diabetes in American experience was a remarkable piece of work. The whole field was worked over again by Prof. Karl Pearson and Dr. Alice Lee, and also by the late Frances Wood and myself. The most sedulous re-examination of the data failed to reveal any error in Maynard's work, and the interpretation of his results must still be looked for; it is clear that the results are correct. It was an immense gain for biometric science that a man who had had wide clinical experience should devote himself to statistical inquiry. Maynard and Dr. John Brownlee were, in fact, the only medical statisticians of the first rank who had had such experience. The loss is irreparable. It is the more bitter in that Maynard's personal qualities endeared him to all who knew him. He was no dry-as-dust manipulator of figures, but a delightful companion. The statisticians in the National Institute of Medical Research will never forget the visit he paid us last year and his stories of campaigning experiences in the war. The loss is indeed irreparable, but yet the future of a branch of science that can arouse the enthusiasm of such a man is assured. We are the poorer by his loss, but his example has given us courage to go on."

MEMORIAL TO THE LATE DR. H. D. FARNELL.—A committee has been formed to consider the form of the memorial to Dr. Farnell, under the presidency of the Mayor of Eastbourne, Councillor G. B. Soddy. It is hoped that a sum of £10,000 may be raised, and though the nature of the memorial has not yet been decided on, it will probably be in association with Princess Hospital, to which Dr. Farnell was for long attached.

Medical News.

UNIVERSITY OF OXFORD.—In a Congregation hel on Oct. 18th the degree of Bachelor of Medicine was conferred on T. A. Brown, Exeter College.

The Whitley Professor of Biochemistry, Dr. R. A. Peters, will deliver an inaugural lecture in the Examination School on Wednesday, Nov. 14th, at 5 P.M., the subject bein A Wonderland of Chemistry.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AN SURGEONS OF ENGLAND.—At the Final Examination hel from Oct. 2nd to 26th the following candidates wer approved in the undermentioned subjects:—

Medicine.—M. V. Abraham, Manchester; Iris I. G. Adams, Royal Free and St. Mary's; J. N. Alexander, Guy's; A. E. Austen and R. T. Bannister, St. Bart.'s; J. Bee, London; E. R. Bennion, Westminster; C. E. W. Bower, Manchester; Annie Bryce, Birmingham; H. D. Chalke an J. H. H. Chataway, St. Bart.'s; M. N. Chatterjee, Birming ham; R. Chester, Leeds; R. G. Cochrane and T. S. Cochrane, St. Bart.'s; A. Cooke, Liverpool; A. M. Cooke, St. Thomas's; Rosemary Cooke, Charing Cross; Elizabet M. Cowie, Royal Free; G. I. Davies, Univ. Coll.; T. Davies, St. Bart.'s; Dorothy L. C. Day. London; A. M. Deane, St. Thomas's; J. A. F. Denyssen, Guy's; C. J. C. De Silva, Middlesex; B. Dous, St. Bart.'s; J. Dreadon Otago; C. L. Elgood, St. Bart.'s; V. H. Ellis, London Sarah Evans, Charing Cross; H. P. Goldsmith and A. W Grace, Univ. Coll.; C. W. Greenaway, Guy's; A. B Griffiths, Liverpool; L. W. Hale, Univ. Coll.; C. S. Hall pike, Guy's; J. F. S. Hamilton, Bristol; Leila M. Hawksley Royal Free; Margaret R. Herford, Royal Free and St Mary's; E. W. Hicks, St. Thomas's; Gabrielle M. Highfield Jones, Charing Cross; H. A. Hirst, London; Margare Hossell and Dorothy P. Hytch, Royal Free; D. E. Joscelyn and P. C. Joscelyne, Bristol; A. K. Kerr, St. Bart.'s H. B. L. Levy, Durham; G. Lucas, London; Kathleen M Lyons, Univ. Coll.; N. W. MacKeith, Guy's; J. R. A Madgwick and Dorothy B. Marling, London; K. F. T Mills, Middlesex; H. S. Morley, Univ. Coll.; L. Morris Manchester; E. V. Newling, Middlesex; I. Newton Charing Cross; Frances L. Nichol, Royal Free; R. D Owen, Guy's; C. Panchalingham, Ceylon; Isabel D Patterson, London; J. F. Payan, Guy's; Eleanor M Pulleine, St. Mary's; W. A. Robb, St. Bart.'s; F. Robinson Manchester; S. C. Rowbotham, Guy's; R. W. Savage St. Bart.'s; F. L. Scott, King's Coll.; F. A. H. Simmonds St. Bart.'s; T. H. Sims, St. Thomas's; A. E. Slinger King's Coll.; Beatrice M. Smyth, London; W. R. Spurrel Guy's; R. H. Stanbridge, London; E. B. Strauss, King Coll.; A. K. Thomas, Univ. Coll.; K. W. Thorp, St Thomas's; R. J. Toleman, Cardiff and London; B. D Underwood, London; B. M. R. West, Middlesex; H. J. W J. Westlake, Guy's; H. A. M. Whitby, St. Bart.'s; Joyc E. M. White, London; G. W. Wigg, Durham; R. C Williams, Birmingham; and Cicely F. Wilson, Bristol.

Surgery.—C. F. Ashby, St. Bart.'s; J. Atkin, Guy's Muriel E. Binns, Royal Free; R. A. Brews, London W. Brockbank, Cambridge and Manchester; R. E. D Cargill, St. Bart.'s; Nora Cheney, King's Coll.; R. Chester Leeds; H. G. Close, Guy's; T. S. Cochrane, St. Bart.'s Catherine A. Cowan, Royal Free; Vera Cullwick, Birming ham; Charlotta D. N. De Wilde, London; C. K. D Edwards, Liverpool; G. Elliot and J. Elgood, St. Bart.'s N. J. England, Bristol; T. J. Evans, Middlesex; G. H Froggatt, Sheffield; D. Frost and I. Gluckman, London W. E. Grice and G. J. Griffiths, Middlesex; C. S. Hallpike Guy's; J. G. Hamilton, London; Greta Hartley, Roya Free; R. C. Hatcher, Bristol; E. F. Hewlitt, Guy's J. A. Hislop, Durham; H. Jaffe, Manchester; A. T. Jones Univ. Coll.; I. S. Jones, Liverpool; E. F. King and F Langford, Bristol; N. E. Laurence, St. Bart.'s; O. B Lean, Univ. Coll.; R. R. Macintosh and H. Maclachlan Guy's; H. B. Mann and F. B. Matthews, Middlesex W. W. McLean, St. Thomas's; M. Meyers, St. Bart.'s S. M. Milner, Manchester; W. E. Moody, St. Mary's L. Morris, Manchester; C. J. Murphy, Birmingham; T. J O'Donnell, London; L. E. Owen and W. F. Payne, Guy's M. S. Pembrey, St. Bart.'s; M. Rubinstein, Guy's R. W. Scarff, Middlesex; M. B. Seng, Guy's; H. Sheard Leeds; N. Smith, St. Bart.'s; R. S. Starkey, St. Thomas's C. R. Steel, St. Bart.'s; E. G. Steeler, St. George's; D. M. E Thomas, St. Mary's; J. H. G. Thompson, St. Thomas's C. A. Van Rooyen, London; L. J. Watkins, St. Thomas's Dorothy A. Waterfield, London; Fanny M. Whittaker Charing Cross; T. M. Wilks, King's Coll.; and B. H. H Wooderson, London.

Midwifery.—S. Abadir, King's Coll.; N. J. Ainsworth Middlesex; G. T. Allerton, London; Kathleen D. Arnsby Royal Free; R. N. Aston, St. Bart.'s; Kathleen J Atkinson, King's Coll.; H. Aukland, Liverpool; K Bandaly, Univ. Coll.; R. T. Bannister, St. Bart.'s; M Bannounah, Guy's; D. T. Barnes, St. Bart.'s; E. V Barnes and J. C. Barrett, St. Thomas's; I. M. Benjamin Guy's; A. G. Bewes, St. Thomas's; Muriel E. Binns Royal Free; Phyllis E. Bond, Univ. Coll.; H. B. Boucher St. Thomas's; Margaret Bowstead, Royal Free; W. H Bradley, Guy's; Stella M. Brown, King's Coll.; Anni Bryce, Birmingham; Hilda L. Byett, Royal Free; A Canard, Guy's; K. Chaudhri, St. Mary's; C. F. Chissell Middlesex; Edith I. Clark, Univ. Coll.; W. Clark, Charin

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[1] Biometrika, xiv., p. 337.

Cross; G. C. W. Clarke, Sheffield; Winifred M. Clement, Charing Cross; R. G. Cochrane, St. Bart.'s; C. D. Cogswell, King's Coll.; I. Cohen, Middlesex; G. E. C. Collis, Univ. Coll.; C. K. Colwill, Guy's; A. Cooke, Liverpool; H. A. Cooper, King's Coll.; A. B. Cowley, St. Bart.'s; Vera Cullwick, Birmingham; D. V. Davies and J. R. Davies, St. Thomas's; L. F. Davies, Guy's; L. Davies, Liverpool; C. H. Devereux, Univ. Coll.; Georgina R. Dunn and Lorna Dunn, Bristol; J. D. Durance, St. Mary's; Kathleen H. Durance, Royal Free; R. H. Dyer, King's Coll.; R. M. Ealand, Bristol; J. T. R. Edwards, St. Bart.'s; L. C. Edwards, London; Mary G. H. Edwards, St. Mary's; W. Egan, Charing Cross; A. Elliot Smith, Univ. Coll.; N. J. England, Bristol; Phyllis V. L. Epps, Royal Free; Ann C. Evans, Cardiff; T. I. Evans, St. Thomas's; T. P. Evans, Charing Cross; S. A. M. Fam, King's Coll.; Edith M. Field, Royal Free; L. Freeman, St. Thomas's; W. S. Fricker, King's Coll.; A. T. Fripp, Guy's; E. B. Garrett, Univ. Coll.; P. Garson, St. Bart.'s; D. R. Gawler, King's Coll.; P. L. Goitein, St. Mary's; A. W. Grace, Univ. Coll.; H. Graf, Liverpool; F. H. K. Green, St. Bart.'s; F. N. Green and A. B. Griffiths, Liverpool; H. Hamilton, London; N. W. Hammer, Middlesex; Gabrielle M. Highfield-Jones, Charing Cross; C. G. Harper, Middlesex; I. Harris, Westminster; J. Hartsilver, St. Bart.'s; N. H. R. Hatfield, St. Mary's; Leila M. Hawksley, Royal Free; J. B. Hayes, Charing Cross; L. I. Henzell, Univ. Coll.; W. A. Hervey, St. Bart.'s; E. W. Hicks, St. Thomas's; A. C. Hill, Univ. Coll.; J. A. Hislop, Durham; R. G. Hodder, St. Thomas's; J. Holmes, St. Bart.'s; Barbara M. Hope, King's Coll.; D. V. Hubble, St. Bart.'s; W. Hughes, Middlesex; R. G. W. Husbands, Univ. Coll.; Dorothy P. Hytch, Royal Free; M. H. Jacobs, Guy's; H. N. James, St. Mary's; I. L. Johnstone, Middlesex; A. T. Jones, Univ. Coll.; A. Jowell, Guy's; L. C. Kalra, Charing Cross; A. C. King, London; G. M. King, King's Coll.; A. H. Kynaston, St. Bart.'s; G. S. Landon and S. A. Leader, Guy's; C. H. Lee, London; H. Levit and F. J. Levy, Guy's; H. B. L. Levy, Durham; H. M. Levy, Middlesex; E. I. Liberman, Guy's; E. O. Lloyd, Middlesex; H. Lord, Univ. Coll.; G. Lucas, London; G. A. McKaig, St. Thomas's; N. W. MacKeith, Guy's; A. V. Mackenzie, St. Bart.'s; J. H. Macpherson, King's Coll.; G. S. Malik, Univ. Coll.; Marion A. N. Marshall and Nancy S. Marshall, St. Mary's; E. L. Martin, Charing Cross; R. Massingham, Univ. Coll.; J. H. Matthews, Manchester; W. A. Mill, Guy's; A. J. Moody, St. Bart.'s; V. M. Morris and S. G. Mozumder, Middlesex; M. Murad and C. J. Murphy, Birmingham; W. R. Nash, St. Bart.'s; T. K. Natesan, Madras and London; E. V. Newling, Middlesex; C. T. Norris, London; K. C. L. Paddle, St. Bart.'s; C. Panchalingham, Ceylon; G. W. C. Parker, St. Bart.'s; G. F. S. Parker, Manchester; Lucy Parker, Royal Free; T. G. W. Parry, Guy's; V. Patrick, Manchester; W. F. Payne, Guy's; Dorothy E. Peake, London; G. M. Pennant, King's Coll.; A. Perkoff, London; S. W. Phoon, Guy's; P. J. J. Pienaar, St. Thomas's; E. B. Pollard, St. Bart.'s; Louisa M. Poynder, Charing Cross; J. O. Priestley, Middlesex; Winifred M. Proctor, Durham; Violet A. Quilley, Royal Free; V. I. Raman, London; R. H. T. Rea, St. Thomas's; T. S. Read, King's Coll.; E. J. Rees and W. E. Rees, St. Thomas's; H. D. C. Rice, King's Coll.; C. B. Rich, Charing Cross; F. Robinson, Manchester; R. E. Robinson, Guy's; Annie E. G. Rowlands, Univ. Coll.; M. Rubinstein, Guy's; E. Rudge, St. Bart.'s; F. R. Sandford, Middlesex; F. E. E. Schneider, Univ. Coll.; F. L. Scott, King's Coll.; A. de M. Severne, St. Thomas's; H. Sheard, Leeds; A Sherning, St. Thomas's; I. M. Sidley, St. Bart.'s; R. F. Smith, Guy's; J. A. Smorfitt, Leeds; I. Spiro, Univ. Coll.; Ethel L. A. Stamberg, Royal Free; A. W. Summersgill, Manchester; G. E. F. Sutton, King's Coll.; H. Taylor, London; M. Taylor, Guy's; A. K. Thomas, Univ. Coll.; O. O. S. Thomas, St. Mary's; W. G. Thwaites, St. Thomas's; R. W. H. Tincker, St. Bart.'s; R. J. Toleman, London; A. Tom, Guy's; G. M. Tothill, Charing Cross; C. H. C. Toussaint, Guy's; Henrietta Trend, Royal Free; V. C. Tughan, Univ. Coll.; Mary M. Turnbull, King's Coll.; Cicely N. Twining, Royal Free; B. D. Underwood, London; Hermione M. Usborne and Dorothy M. Vaux, Royal Free; I. R. Vermooten, Guy's; F. O. Walker, Middlesex; Constance Walters, Cardiff; J. L. Warner, Middlesex; H. O. Watkins-Pitchford, St. Thomas's; A. Watson, St. Mary's; M. A. Wiles, King's Coll.; E. R. Williams, Cardiff; H. H. Williams, Liverpool and Middlesex; R. C. Williams, Birmingham; W. M. Winder, St. Mary's; R. H. Yelf, King's Coll.; and G. C. Young, St. George's.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—Since the quarterly meeting of the College, reported in THE LANCET of Nov. 3rd, the Licence has been granted to Charles Henry Newman and Muriel Alice Stephens of King's College Hospital.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—The following candidates have passed the Final Dental Examination and have been granted the diploma L.D.S. R.C.S. Edin.:—

John B. Forgan, Bernard S. Reynolds, James G. Mackintosh, Pratap Singh Khosla, James W. Sykes, William R. Galloway, Robert G. Law, Douglas J. Kynoch, McGregor McLean, Nina Borrie Duncan, Joseph S. Sirey, John G. McClean, Lourens Wepener Ackermann, Charles E. Atkinson, Frank W. Walmsley, Alexander N. Wight, Robert Lauchlan, Archibald T. Donaldson, John Dewar, Kathleen M. Scott, Nico Hofmeyr Bartmann, Douglas R. Forster, John D. Riddell, Richard F. Pagnam, and Andrew R. Brown.

The following candidates passed in the subjects of Pathology, Medicine, and Surgery: John Murphy, Thomas Jamieson, John Campbell, and Orry Smedley Crowthers.

The following candidates passed in the subjects of Medicine and Surgery: Frederick A. Hunter and Edward N. Jamieson.

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics; Jurisprudence and Hygiene; Pathology and Bacteriology.—John F. Wilde (passed on high marks), Thomas W. MacDowell, Thomas C. Foster, William J. A. M'Mahon, Mary C. Livingston, Charles F. D. M'Caldin, Gladys M. A. Lowry, William H. Coen, Philip Coleman, Richard T. Cronin, Mary Galvin, George A. Miller, James J. Cusack, Augusta M. Young, and William O. Warrington.

IN COMPLETION.

Gordon P. Bamford, Denis J. Cussen, John Cussen, Edward C. Dudgeon, Charles J. du Plessis, Robert W. Harte, Launcelot W. R. Haskins, John M. Johnston, Christopher Lord-Flood, Robert H. M'Keag, Kenneth F. Mackenzie, William H. Maguire, Henry M. Nevin, David N. Power, Frederick M. Purcell, John St. Clair, Israel Strasburg, François J. Swanepoel, and Carmichael Wilson.

DIPLOMA IN PUBLIC HEALTH.

Part I.—Frederick Stevenson, William B. E. M'Crea, George C. B. Robinson, and Richard Seale.

Part II.—Frederick Stevenson, William B. E. M'Crea, Patrick M. J. Bobbett, George C. B. Robinson, and Richard Seale.

UNIVERSITY OF PARIS.—An honorary degree in medicine is to be conferred upon Prof. Camillo Golgi, of Pavia, and Prof. W. W. Keen, of Philadelphia, in the amphitheatre of the Sorbonne on Nov. 24th. Sir J. J. Thomson will receive an honorary degree in science at the same time.

PAPWORTH VILLAGE SETTLEMENT.—A private view of a film illustrating the work of this settlement will be held at the Gaumont Co.'s Projection Theatre, Sherwood-street, Piccadilly Circus, London, W. 1, on Nov. 15th at 4 P.M.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The new school of dental surgery will be opened on Nov. 12th, at 4.45 P.M., when the inaugural address will be given by Mr. F. Dyke Acland, chairman of the Dental Board, Lord Hambleden presiding.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—The fifth series of lectures given at this hospital on Thursdays, at 5 P.M., to practitioners and students is now in progress. On Nov. 8th Dr. C. H. Roberts gave the first lecture on Hæmorrhages in Early Pregnancy. Subsequent lectures will be announced in our Medical Diary.

GLASGOW UNIVERSITY CLUB, LONDON.—This club will dine at the Trocadero Restaurant, London, W., on Dec. 6th, at 7.30 P.M., Sir William Leishman, F.R.S., presiding. Any Glasgow University men not members of the club, who desire to attend, are requested to communicate with the hon. secretaries, 1, Harley-place, London, N.W. 1.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—The past and present students' dinner will be held in the King's Hall, Armstrong College, Newcastle-on-Tyne, on Tuesday, Nov. 27th, at 7.30 P.M., Sir David Drummond presiding. Tickets at 10*s.* 6*d.* may be obtained from the Hon. Secretary, Re-union Dinner Committee, College of Medicine, Newcastle-on-Tyne.

SMALL-POX IN ENGLAND AND WALES.—During the week ended Oct. 27th, 22 cases of small-pox were notified in England and Wales, with the following distribution: Durham, 2 (Southwick-on-Wear); Gloucestershire, 7 (Gloucester 5, "including 2 cases notified as chicken-pox but rediagnosed as small-pox," East Dean R.D. 1, Gloucester R.D. 1); Northumberland, 1 (Tynemouth); Notts, 10 (Hucknall, 9, Kirkby-in-Ashfield, 1); Yorks North Riding, 1 (Middlesbrough); Yorks West Riding, 1 (Adwick-le-Street).

ROYAL SANITARY INSTITUTE.—A sessional meeting will be held on Nov. 17th, 1923, in the Council Chamber, Town Hall, Ipswich, when discussions will take place on Sewage Disposal, to be opened by Mr. E. J. Silcock, followed by Mr. H. C. H. Shenton and others; and on Tuberculosis in Milk to be opened by Dr. W. F. Corfield, followed by Dr. A. M. N. Pringle and others. The chair will be taken at 10.30 A.M. by Dr. Louis C. Parkes. At 2 P.M. visits will be paid to the public health office, sanatorium, isolation hospital, electricity station and destructor, new water works, new baths, and Messrs. Harris (Ipswich), Ltd., bacon factory.

A meeting will be held at the Institute, 90, Buckingham Palace-road, London, S.W., on Nov. 26th, when Miss Muriel A. Payne, hon. secretary, International School of Nursing and Child Welfare for Russia, will give an address on Sanitary Relief Work in Russia. The chair will be taken at 5 P.M. by Dr. Louis C. Parkes.

West Kent Medico-Chirurgical Society.—A meeting will be held in the board room of the Miller General Hospital, Greenwich, to-day, Friday, Nov. 9th, at 8.45 P.M. Dr. E. G. Annis, the President, will occupy the chair, and Dr. Hildred Carlill will read a paper on Tabes Dorsalis.

Royal Northern Hospital.—The Prince of Wales will open the new Casualty Department of the hospital (which is the War Memorial of the borough of Islington) on Nov. 27th. Contributions amounting to £12,000 have been received towards the cost of the department, which will be one of the best equipped in London, but a further £1000 are required to open the building free of debt.

St. John's Hospital for Diseases of the Skin.—In connexion with the recent developments at this hospital, and the formation of the London School of Dermatology, a dinner was given at the Trocadero Restaurant last month to Dr. James H. Stowers by his dermatological colleagues. Dr. Stowers was very largely responsible for carrying through the negotiations which have culminated in the present coöperative scheme. His colleagues have recognised the importance of this service, and their appreciation was suitably voiced at the complimentary dinner by Sir Malcolm Morris, who was in the chair, and by Dr. W. Griffith, senior physician to St. John's Hospital.

Medico-Psychological Association.—The next quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will take place on Nov. 22nd, at 11, Chandos-street, Cavendish-square, London, W., under the presidency of Lieut.-Colonel E. Goodall, at 2.45 P.M Prof. D. C. Winckler, of the Psychiatric-Neurologic Clinic, Utrecht, will deliver an address on Psychiatrical and Neurological Teaching at the Dutch Universities, especially at the University of Utrecht.

It is proposed to hold a dinner at the Langham Hotel, Portland-place, London, W., on Nov. 22nd, at 7 P.M. for 7.30, in honour of Prof. Winckler. Tickets, 10*s.* 6*d* each, should be procured as soon as possible from the hon. general sec., Dr. R. Worth, Springfield Mental Hospital, nr. Tooting, S.W. 17.

Fusion of Venereal Diseases Societies.—At a joint conference between the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease, held at 1, Wimpole-street, London, W., on Oct. 30th, the following resolutions were adopted :—

1. That the ultimate fusion of the two societies is desirable.
2. Subject to the approval of their respective executives this conference resolves itself into a deputation to the Ministry of Health to urge that "the law should be altered so as to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority."
3. That this conference recommends that the respective executives of the two societies should each appoint not more than five members to form a liaison committee between the two societies and to explore the possibility of fusion.

Scientific Novelties Exhibition.—The exhibition held at King's College during the Christmas holidays, 1922-23, aroused such interest, and was the means of raising so substantial a sum in aid of the hospitals of London, that it has been decided to repeat the experiment this year. The exhibition will be open from Dec. 29th to Jan. 9th (inclusive), between the hours of 2 and 9 P.M., and experiments and demonstrations will be going on continuously during this period, as on the last occasion. Short lectures with experimental or lantern illustrations will also be given, and promises of such lectures have already been received from Prof. Cheshire, Prof. Winifred Cullis, Prof. Eddington, Sir Richard Gregory, Prof. Morley Davies, Prof. Smithells, and others. The proceeds will be given to King Edward's Hospital Fund for London.

Tuberculosis Society.—An ordinary meeting of the Society will be held on Nov. 16th, at 8 P.M., at 1, Upper Montague-street, Russell-square, London, W. Dr. Evrot (Comité National de Défense Contre la Tuberculose) will read a paper on Tuberculosis in France, and the relationship of tuberculosis officers to local infirmaries will be discussed. On Dec. 14th Mr. R. Milne will discuss Operative Fixation for Caries of the Spine. On Jan. 18th, 1924, Dr. A. S. MacNalty will speak on Tuberculosis Work in England. On. Feb. 15th Dr. Clive Riviere will give a lecture on Artificial Pneumothorax. The meeting on March 21st will be devoted to considering the Tuberculosis Work of the Ministry of Pensions, Administrative and Clinical, when Dr. G. Basil Price and Dr. Alex. Sandison will read papers. On April 18th there will be a provincial meeting, and on May 16th a member of the National Tuberculosis Association of America will discuss Tuberculosis Work in America. On June 20th the annual meeting will be held. Meetings will be held at Margaret-street Hospital, Margaret-street, W., at 8 P.M., unless otherwise announced.

Liverpool Medical Institution: Biennial Dinner.—On Nov. 1st Sir Arthur Keith was entertained as the guest of the evening at a dinner attended by 150 members. Dr. Hill Abram presided. The health of the Liverpool Medical Institution was proposed in a spirit of delicate banter by Prof. Campagnac. He declared himself an admirer of the good old days, and trusted that the profession would maintain its reputation for urbanity, refinement, sage counsel, and good friendship. He reminded his hearers that unless they understood their patients as men they could do them little service as doctors. "The Guests" was proposed by Mr. F. C. Larkin in happy vein, and Sir Arthur Keith replied with a light touch and a sure instinct for the right word. He spoke of the law of relativity in relation to life and medicine, and he told of men he had known as not too brilliant students, now themselves teachers and impatient of the stupidity of those they had to teach forgetful of the passage of the years in which they had been gathering wisdom. He glanced at Bernard Shaw's picture of the span of human life lengthened out to 300 years or more and painted the misery of the young men who, he sometimes thought, would be better pleased with an age limit of, say, 35. The President of the Chester Medical Society also spoke.

Conference of Cremation Authorities.—Under the auspices of the Cremation Society of England, a conference was held on Oct. 25th at the Town Hall, Liverpool The conference was opened by the Lord Mayor of Liverpool (Mr. F. C. Wilson) and Dr. Herbert T. Herring occupied the chair. In his address Dr. Herring referred to the enormous advantages which the universal adoption of cremation would confer upon the community. Its progress had been slow, but it now looked as if we were on the threshold of great developments in this direction, requiring only the combined effort of all to make cremation the usual and accepted method of reverent disposal of the dead. With regard to propaganda, Dr. Herring recapitulated the proposals made at the conference held in 1922 ; these were briefly as follows Advocacy of the æsthetic side of cremation rather than of the indisputable sanitary advantages ; advertisement in the public press, and by propaganda literature ; removal of the fear of concealment of crime ; encouragement of the public to visit crematoria ; popular lectures ; and the obtaining of signatures to the form "requesting cremation at death." Many, if not all, of these suggestions had been acted upon during the last 12 months, to the advantage of the movement ; prominence had been given to the idea of the "Garden of Rest" for the undisturbed repose of ashes and incidentally for the solution of the cemetery problem. Improvements had been effected in buildings, and all jarring notes during the cremation ceremonial had been removed. With regard to press announcements and distribution of literature, the Cremation Society of England alone distributed by various means some 60,000 books and leaflets. When it was known that inspection was invited, 600 people had visited the Bradford crematorium in one day. The secretary of the Cremation Society reported a steady increase in the number of names registered, as well as in the number of persons who have effected prepayment for their ultimate cremation by joining the Society. Following Dr. Herring's address, a letter from the International Conference on Cremation, held at Gothenburg on August 30th and 31st and Sept. 1st, signed by Mr. J. Schlyter (hon. director, Swedish Cremation Union and Mr. F. Mencl (Cremation Society of Czecho-Slovakia was read, in which it was suggested that advantage should be taken of the exhibition to be held in London in 1924, to include therein a representative cremation exhibition, similar to those held at Maleno in 1914 and at Gothenburg this year ; and that the sixth World Conference for Cremation should take place in London in 1924. It was agreed that the latter conference should be of an international character if sufficient support could be obtained. A debate then took place in which speakers from London, Liverpool, Manchester, Birmingham, Hull, Bradford and South Wales took part. Among the suggestions made were the education of the younger generations through such organisations as the boy scouts and the girl guides, and the approaching of such social and educative bodies as the Rotary Clubs and the Workers' Educational Association together with requests to the medical faculty, the clergy and the Association of Undertakers for increasing coöperation with the cremation authorities. Medical support was acknowledged, and the undertakers, it was agreed, had refuted a charge of indifference on their own part. Prof. E. W. Hope medical officer of health for Liverpool, said that the advantages of cremation were emphasised when, as in Church-street Liverpool, thousands of bodies had to be removed for re-interment. The greater the pains which had been taken to preserve the bodies by metal coffins and bricked graves or vaults, the more revolting was found to be the condition of the remains when removal was necessary in the interests of the living.

ROYAL SOCIETY.—A Royal Medal has been awarded to Prof. C. J. Martin, F.R.S., for his researches on animal metabolism.

LONDON SCHOOL OF TROPICAL MEDICINE.—The annual dinner will be held on Wednesday, Nov. 21st (7.15 for 7.30 P.M.), at the Hotel Victoria, Northumberland-avenue. Sir Ion Hamilton Benn will preside.

ROYAL MANCHESTER CHILDREN'S HOSPITAL.—The board of the Manchester Children's Hospital has been notified from the Home Office of the King's command that the Children's Hospital shall henceforth be known as the Royal Manchester Children's Hospital.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—In addition to the courses previously announced for this month and now in progress—i.e., gynæcology, psychological medicine, and venereal disease—there will be a series of lecture-demonstrations on children's diseases at the Children's Clinic, Western General Dispensary, from Nov. 12th to Dec. 6th. The subjects dealt with will include gastro-intestinal, respiratory, genito-urinary, and skin affections in children. A special course in ophthalmology will be given at the Royal Westminster Ophthalmic Hospital from Nov. 19th to Dec. 15th, and apart from the clinical instruction each afternoon there will be special demonstrations in medical ophthalmology and methods of examination. During December there will be a refresher course in general medicine and surgery from the 3rd to the 15th at the Hampstead General Hospital, with which will be associated the Hospital for Epilepsy and Paralysis, the North-Western Fever Hospital, and Paddington Green Children's Hospital. The course will be a whole-time one and will include work in all departments. There will also be a course in neurology at the Hospital for Epilepsy and Paralysis, Maida Vale, of which further particulars will be announced later. Full particulars and copies of the syllabus of the foregoing courses will be forwarded on application to the Secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 44 cases were considered and £518 12*s*. voted to 38 applicants. The following is a summary of some of the cases relieved.

Daughter, aged 29, of L.R.C.P. & S. Irel. who practised in Liverpool and died in 1919. During the war the applicant was at the Bank of England as a temporary clerk. The temporary staff was dismissed last July and the applicant then came to London to get a post, but owing to being untrained she was unsuccessful. She now asks the Fund to help with training fees as she has only £3 left of her savings. The Committee made a small grant to render the applicant eligible for help from the R.M.B.F. Guild.

Widow, aged 59, of M.B. Aberd. who practised in Norwich and died in 1916. After the death of her husband she went to live with her mother, who had a pension, but she died in November last year. Applicant tried to earn by keeping poultry, but found that she was out of pocket. Her only income is the interest on £100 War Loan and £250 mortgage. She asks the Fund to help her with her rent, which amounts to £13. Voted £15.

Daughter, aged 65, of M.D. Aberd. who was a deputy inspector in the R.N. and died in 1904. Applicant has been living with her sister where they had their rooms free, but applicant developed mental trouble and the trustees of the home said she must find other accommodation. This necessitated her finding a lodging where she would have good attendance and also near her sister. This was secured a few doors away, and the one room and boxroom amounts to a rent of £1 per week. Her income is only £60 per annum. Voted £12 in 12 instalments.

Widow, aged 52, of L.R.C.P. & S. Edin. who practised in Wales and died in 1902. Applicant is a nurse, and has found it difficult to obtain work and has only received £90 in the last nine months. Her rent is £20, and she has to find £50 towards her daughter's board, who is a dental student. Applicant asks for a grant towards her daughter's expenses. The Committee made a small grant to render her eligible for help from the R.M.B.F. Guild.

Widow, aged 30, of L.R.C.P. & S. Irel. who practised in South London and died in August last. Owing to the sudden death of her husband and having two small children the applicant asked the Fund for assistance, and the Committee voted £15.

Widow, aged 35, of M.D. Glasg. who practised in North London and died in 1916. Since the death of her husband the applicant has managed to maintain herself and children, but she now asks the Fund to assist her in the education of her two children, aged 11 and 8 years. The Committee voted a small grant to enable her to receive assistance from the R.M.B.F. Guild, to whom the case was referred.

Daughter, aged 81, of M.R.C.S. who practised in Kent and died in 1868. Applicant was a mental nurse but is now too old to work. Her total income is £50 per annum and her rent amounts to 6*s*. 6*d*. per week. Relieved once, £26 in 12 instalments. The Committee again voted the same amount.

A donation of £2 was received anonymously from Correggio at the beginning of October, and the Treasurer desires to thank the donor and trusts that this acknowledgment will be duly noted. Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 12th.

WAR: at 5 P.M.
Paper:
Major A. T. Frost, R.A.M.C.: The Present-day Trend of the Treatment of Gonorrhœa, with special reference to Cataphoretic Application of Colloid Silver, to be followed by a discussion opened by Colonel L. W. Harrison, R.A.M.C.

TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.
Presidential Address by Prof. Leonard S. Dudgeon.
Communications:
Dr. Ernest Caroll Faust (Peking Union Medical College): Some Biological and Practical Aspects of Schistosomiasis in China.
Miss G. Le Bas: On the Employment of Fasciola Hepatica as an Antigen for the Serum Diagnosis of Bilharziasis.

Tuesday, Nov. 13th.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Presidential Address:
Prof. A. J. Clark: Commercial Influences in Therapeutics.

PSYCHIATRY: at 8.30 P.M.
Presidential Address:
Dr. T. B. Hyslop: Some Problems of the Future.

Wednesday, Nov. 14th.

SURGERY: SUBSECTION OF PROCTOLOGY: at 5.30 P.M.
Presidential Address:
Mr. Aslett Baldwin: The Causes of Intestinal Disease.

Thursday, Nov. 15th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Cases:
Dr. H. W. Barber: (1) Tuberculides associated with Rheumatoid Arthritis; (2) Some cases of Light Sensitisation.
Mr. C. G. Brodie (introduced): Notes on a case of Sclerodermia treated by Polyglandular Extracts.
Other cases will be shown.

Friday, Nov. 16th.

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Paper:
Prof. Leonard Hill: Physiological Effects of Light, to be followed by a discussion.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Nov. 12th.—8.30 P.M., Discussion on Constipation from the General Practitioners' Point of View. Introduced by Dr. H. Des Vœux.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.
THURSDAY, Nov. 15th.—7.45 P.M., Demonstration of Various Spirochætes. 8.15 P.M., Dr. John Gilks (of Nairobi): Yaws in Kenya Colony, illustrated by lantern slides.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF LONDON ADVANCED LECTURES IN SURGERY.
MONDAY, Nov. 12th.—(At Guy's Hospital Medical School.) 5.30 P.M., Prof. E. W. Hey Groves: The Treatment of Injuries of the Long Bones produced by Accident or Disease. Third Lecture.
TUESDAY.—5.30 P.M., Last Lecture.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Nov. 12th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Addison: Surgical Wards.
TUESDAY.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 3 P.M., Dr. Pernet: Skin Dept.
THURSDAY.—11 A.M., Mr. Simson: Gynæcological Demonstration. 12 noon, Mr. Simmonds: Demonstration of Fractures. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.
FRIDAY.—10 A.M., Dr. Drummond: Gynæcological Operations and Wards. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Nov. 13th.—5 P.M., Dr. A. M. H. Gray: Externally Produced Eruptions.
THURSDAY.—5 P.M., Dr. M. G. Hannay: Urticaria.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: October–November, 1923.

Clinical Lectures and Demonstrations.

Monday, Nov. 12th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Epilepsy: Dr. Aldren Turner.

Tuesday, Nov. 13th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Disorders of Sensation and their Significance: Dr. Hinds Howell.

Thursday, Nov. 15th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Spinal Cord Tumours: Dr. Grainger Stewart.

Friday, Nov. 16th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Surgery of Cerebral Tumours: Mr. Sargent.

Course of Lectures and Demonstrations on Neuro-Pathology.

Monday, Nov. 12th.—12 noon, Pathology of the Neuron, II.: Dr. J. Godwin Greenfield.

A Course of Lectures on the Anatomy and Physiology of the Nervous System commenced on Oct. 16th.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

The fee for the Course, including Pathology, is £5 5*s*. The fee for the Anatomy and Physiology Lectures is £3 3*s*. If taken in conjunction with the Clinical and Pathological Courses an inclusive fee of £7 7*s*. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. Hinds Howell, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Nov. 15th.—4 P.M., Dr. Hutchison: Wasting.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

Thursday, Nov. 15th.—5 P.M., Mr. J. B. Banister: Forceps in Obstetric Practice.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Wednesday, Nov. 14th.—6 P.M., Third Lecture, Dr. R. G. Rows: Association of Ideas, Recognition, and Memory.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

Wednesday, Nov. 14th.—4 P.M., Mr. W. B. Smith: The Extravagance of a Smoke-polluted Atmosphere.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Nov. 13th.—4.15 P.M., Dr. D. E. Core: Differential Diagnosis of Paralysis Agitans.

Friday.—4.15 P.M., Dr. T. H. Oliver: Physiology and Pathology of Diabetes Mellitus.

SALFORD ROYAL HOSPITAL.

(Special Course on Surgical Tuberculosis.)

Thursday, Nov. 15th.—4.30 P.M., Mr. J. B. Macalpine: Renal Tuberculosis.

LIVERPOOL UNIVERSITY POST-GRADUATE LECTURES.

(At 3.30 P.M. each day.)

Monday, Nov. 12th.—(At the Hospital for Women.) Dr. Willett: Uterine Displacements.

Tuesday.—(At the Maternity Hospital.) Prof. Blair Bell: Difficulties and Dangers of the Typical Funnel-shaped Pelvis and Uterine Inertia.

Wednesday.—(At the St. Paul's Eye Hospital.) Mr. Thomas Stevenson and Mr. Gorst: Clinical Cases.

Thursday.—(At the St. George's Skin Hospital.) Dr. Barendt: Skin Cases.

Friday.—(At the Eye and Ear Infirmary.) Mr. H. E. Jones: The Differential Diagnosis of Inflammatory Affections of the Eye.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

Wednesday, Nov. 14th.—(At Swindon), Dr. J. A. Nixon: Diabetes and Modern Methods of Treatment.

Appointments.

Cave, P. N., M.D., B.Ch. Oxf., has been appointed Medical Officer of Health, West Kent United Districts.

Handford, H., M.D. Edin., Consulting Medical Officer of Health for the County of Nottinghamshire.

Howell, B. W., F.R.C.S. Eng., Visiting Surgeon to the Ministry of Pensions Hospital, Shepherd's Bush.

Miller, J. E. D., M.B., B.S., and Griffiths, J. V., M.R.C.S., L.R.C.P., House Surgeons to the Royal Infirmary, Sunderland.

Newell, R. L., M.D. Manch., F.R.C.S. Eng., Honorary Surgeon for Children to the Manchester Northern Hospital.

Pearson, E., F.R.C.S. Edin., Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 57, Barnstaple, Bideford, South Molton, and Torrington County Courts.

Smellie, J. M., M.D. Edin., M.R.C.P., Pathologist at the Queen's Hospital, Birmingham.

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital and Dispensary.—Sen. and Jun. H.S.'s. £300 and £200 respectively.

Bath, Royal United Hospital.—Hon. Ophth. S.

Belfast, Joint Nursing and Midwives Council.—Examiners of Midwives.

Benenden, Kent, National Sanatorium.—Res. Asst. M.O. £275.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £150 respectively.

Birmingham and Midland Eye Hospital, Church-street.—Surg. Reg.

Birmingham, Queen's Hospital.—Med. Reg. £100.

Bristol General Hospital.—Hon. Asst. S.

Bristol Royal Infirmary.—Hon. Asst. Dental S.

British Honduras.—Asst. M.O. $2430.

Bury County Borough.—Asst. M.O.H., &c. £600.

Cambridge, Addenbrooke's Hospital.—H.P. £130.

Cambridge University.—Lecturer in Biochemistry. £350.

Dreadnought Hospital, Greenwich.—H.S. £150.

Eastbourne, Princess Alice Memorial Hospital.—Hon. Ophth. S.

Edinburgh Royal Infirmary.—Supt. £700.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., Obstet. Asst., and Two H.S.'s. Each £50.

Epsom, The Manor.—Jun. Asst. M.O. £300.

Evelina Hospital for Children, Southwark, S.E.—H.P. £160.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. £50.

Indian Medical Service.—Vacancies.

Italian Hospital, Queen-square, W.C.—Hon. Ophth. S.

Leeds Public Dispensary.—Sen. Res. M.O. £200.

London County Mental Hospital Service.—Seventh Asst. M.O. £432.

Londonderry County and County Borough Infirmary.—S.

Maidstone, Kent County Mental Hospital.—Asst. M.O. £350.

Manchester and Salford Hospital for Skin Diseases.—H.S. £100.

Manchester City.—M.O. £620 19*s*. 9*d*.

Manchester, St. Mary's Hospitals for Women and Children.—Two H.S.'s. Each £50.

Nottinghamshire County.—M.O.H. £100.

Pontefract, General Infirmary and Dispensary.—Res. Surg. O. £400.

Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £275.

Prison Medical Service.—M.O.'s. £432.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. £80.

Queen Mary's Hospital for the East End, Stratford, E.—Anæsthetist. 50 guineas.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. Cas. H.S. £100.

St. Albans City.—M.O.H., &c. £900.

St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.

Salisbury Municipality, Rhodesia.—M.O.H. £600.

Sheffield, Jessop Hospital for Women.—Sen. Res. O. £250. Also Two H.S.'s. Each £100.

Wandle Valley Isolation Hospital, Beddington Corner, Mitcham Junction.—R.M.O. £400.

West London Hospital, Hammersmith-road, W.—Hon. Asst. S. to Throat, Nose, and Ear Dept.

Willesden General Hospital, Harlesden-road, N.W.—H.S. £100.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at South Petherton (Somerset) and Shifnal (Salop).

Births, Marriages, and Deaths.

BIRTHS.

Barclay.—On Nov. 5th, at 2, Greenhead-road, Huddersfield, the wife of Wm. Barclay, M.B., F.R.C.S. Edin., of a daughter.

Cook.—On Oct. 30th, at Lyme Regis, the wife of P. Nield Cook, M.B., of a daughter.

Feldman.—On Nov. 1st, at Arkwright-road, Fitzjohn's-avenue, N.W., the wife of Dr. Israel Feldman, of a son.

Haslett.—On Oct. 30th, the wife of Dr. W. Handfield Haslett, J.P., Halliford House, Shepperton, of a daughter.

MARRIAGES.

Peebles—Marshall.—On Oct. 30th, 1923, at the Parish Church. Cheltenham, by Rev. Dr. J. D. Mullins, assisted by Canon H. A. Wilson, Rector and Rural Dean of Cheltenham, and Rev. C. H. Lancaster, Vicar of St. John's, Cheltenham. David James, elder son of the late T. S. Peebles, Esq., and Mrs. Peebles, of Dundee, to Marjorie Grace, elder daughter of Mr. and Mrs. Charles Marshall, of Carlton Lawn. Cheltenham.

DEATHS.

Edwards.—On August 15th, at the Manchester Royal Infirmary. after operation, John Edwards, M.R.C.S. Eng., L.R.C.P. Edin. & L.M., of Withington-road, Whalley Range, Manchester, aged 69 years. Late Senior Medical Officer, H.M. Prison Service.

Hall.—On Oct. 27th, at Ulidia, Bexhill, Geoffry Craythorn Hall, Colonel, I.M.S. (retired), aged 75 years.

Latham.—On Oct. 29th, at York-crescent, Clifton, Bristol, Peter Wallwork Latham, M.D., F.R.C.P., aged 91 years.

Scott.—On Nov. 2nd, at High-street, Musselburgh, Thomas Rennie Scott, M.D., aged 70.

Smith.—On Nov. 3rd, at a nursing home in Blackheath, S.E., Henry Lionel Smith, J.P., M.R.C.P.Irel.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

RADIOSCOPY AND RADIOTHERAPY.*

BY SIR HUMPHRY ROLLESTON, K.C.B., M.D. CAMB.,

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AT a time when financial stress is forcing many hospitals to close some of their wards it speaks well for the generosity of the Weymouth public and the energy of this hospital's authorities that to-day sees the addition of a wing for an expanded X ray department. This important improvement is appropriately dedicated to the memory of Dr. James Miller, who for 15 years devotedly served the poor of this hospital, and died within its walls on Nov. 9th, 1918, almost exactly five years ago, from lung complications of influenza. Like many unselfish men of his profession he neglected himself to care for others and went about his work with a temperature of 104° F., which he certainly would not have allowed any one else to do. Always willing to help in any capacity, generous and sympathetic, he was the friend of the poor, and did not let his light shine prominently before men; a genuine sportsman, he played the game for his side, never for his own hand. Often such a life has its only memorial in the gratitude, genuine though necessarily transient, of the poor; but his relations, colleagues, friends, and patients have rightly determined to perpetuate the good work he had silently carried out by erecting and equipping a new X ray department which bears the name of their beloved physician—The James Miller Memorial Wing. Among these benefactors of the hospital are his mother, Mrs. Miller, who gave £1000, members of the hospital staff who collected £700, Mrs. Sanderson-Wells and Mrs. C. Barrett, who got up two fêtes realising £1200 and £2000 for this pious object.

The Beginnings of X Ray Work.

Prof. W. K. v. Röntgen, of Würzburg, discovered X rays when working with a Crookes's high vacuum tube electrically excited, in November, 1895; and it was therefore a great Englishman, Sir William Crookes (1832–1919), whose work rendered this discovery possible. Röntgen died at Münich on Feb. 10th last in his seventy-eighth year, and thus had the satisfaction of seeing the enormous advances that his observation has rendered possible, not only in pure science but in its practical application, especially in the art of healing. Those who were in practice before radiology became the handmaiden of medicine and surgery know what a revolution has taken place in our means of accurately detecting disease. This is shown, perhaps as well as any detailed review would do, by the fact that an action for professional negligence has been brought against a medical man on the ground that he did not employ X rays in a case of possible fracture of a bone. Unlike many great advances in medicine, notably Lister's antiseptic method, the use of X rays was at once taken up most enthusiastically and, though its professional applications took some years to develop, on account of many technical difficulties, it was never neglected or opposed. In fact, within a week of the announcement of the discovery, Cox, in far-off Montreal, localised a bullet which for seven years had caused trouble in a patient's leg and so led to its extraction on the following day. First employed for the detection of fractures, foreign bodies, and calculi, X rays were in the same year (1896) applied by J. Macintyre, of Glasgow, to the diagnosis of intrathoracic disease, such as aneurysm; about ten years later pyelography came into vogue. That advances are constantly being made may be shown by a few examples; the introduction of gas into the abdominal, cranial, or even other cavities before an X ray picture is taken is now employed to define more clearly the position of a tumour, and Dr. R. W. A. Salmond [1] has shown how valuable the introduction of air into the pericardium—a previously unexploited region by this method—may possibly be in the detection of unusual and otherwise unrecognisable lesions; Prof. Jacobaeus's thoracoscopy with division of pleuritic adhesions under the X rays opens new possibilities in connexion with the treatment of pulmonary tuberculosis by artificial pneumothorax; Sicard's method of localising the level and extent of spinal fractures, adhesions, or tumours obstructing the intrathecal space by means of injection of lipiodol (a non-toxic solution of iodine in poppy-seed oil) before the spine is X rayed, now employed by him in 150 cases,[2] is a most promising aid to diagnosis; Mr. P. Sargent [3] was the first to report its use in this country; and Sicard's pupils, Jacques Forrestier and L. Leroux,[4] have applied it to the detection of pulmonary lesions such as bronchiectasis. The demonstration of gall-stones has been followed by that of other pathological changes in the gall-bladder; and the discovery, by Prof. Gôsta Forsell, of Stockholm, that the mucous membrane of the gastro-intestinal tract undergoes active movements, apart from the coarser contractions of the muscular coat, and thereby controls the distribution and regulation of the contents, has physiological and pathological bearings as yet not recognised. As regards diagnosis, X rays have provided an additional sense or new eye, and their extension of the field of vision is comparable with the advance made when microscopic lenses and telescopes were first introduced. In the 28 years since X rays were discovered the mental attitude of clinical workers has gradually undergone a change, the magnitude of which is only realised when a medical man finds himself in some place where X rays are not available for help in a case of doubtful diagnosis.

X Ray Treatment.

X rays are not so widely employed or so well established in treatment as in diagnosis and, as has already been pointed out, it is mainly in regard to the latter that they have changed our outlook on medicine. In some skin diseases and superficial tumours their beneficial influence has been proved beyond question, and the autolytic effect of irradiations has been utilised in uterine fibromyomas, prostatic hypertrophy, erythræmia, exophthalmic goitre, metrorrhagia, lymphadenomatous and other enlargements of glands, and chronic tonsillitis, and good results in other affections may confidently be anticipated. But remedies powerful for good are not without risk when employed in large doses, and the dangers attaching to X rays are now fully recognised. Those most constantly in contact with irradiations are naturally most prone to suffer, and many pioneers of radiology, before the risks were fully realised, paid dearly for their devotion. It has been estimated that a hundred radiologists have died from X ray carcinoma of the skin; and that aplastic anæmia, chronic ill-health, and sterility may be produced in radiologists is too well known. It is therefore important that the recommendations of the X ray and Radium Protection Committee should be acted upon, and that all new X ray departments should be inspected from this point of view by the National Physical Laboratory, Teddington.

The chronic ill-effects of X rays and radium are naturally almost only seen in X ray workers, but after long exposures, especially the intensive exposures for hours originating from Erlangen for carcinoma, patients may be extremely ill with acute constitutional symptoms and even die; this is, fortunately, a rare accident, and as our knowledge increases precautions will render it even more so. This form of treatment is still on its trial, and should be exhaustively tested at large X ray departments under the supervision of whole-time radiologists before its adoption is accepted as a routine therapeutic method of all hospitals. In some cases rapid spread of malignant disease supervenes after radiation and thus recalls the increase in lymphadenoma sometimes noticed after surgical removal of some of the affected glands. This may be independent of radiation or operative interference, but the question whether radiation, especially in small doses short of lethal action, stimulates the growth of cancer cells has been much discussed. In a review of this complex pathological question Ewing [5] concludes that the danger of stimulating the growth of tumours by the present methods of radiotherapy is extremely remote, and that the view that inadequate radiotherapy can endow the cells with increased vitality is quite unreasonable.

Important as a thoroughly complete and up-to-date equipment is, the first essential is that there should be a competent radiologist in charge of the department, and the Weymouth and District Hospital is most fortunate in having the services of Dr. Rodier Heath, who for 15 years has been the pioneer in this town, which thus provides an invaluable centre for radiological work.

A NEW SPECIES OF GERM.

Sheffield University has produced a new species of vibrio—an entirely non-pathogenic commensal organism. This germ takes the form of a little magazine, the *Vibrio*, grown on the culture medium of the University Medical Society. The journal is edited by a student committee, and the editors aim at creating an official organ "in which full reports of papers read before the society can be published, and in which much of the original work done in the Faculty of

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* Remarks made at the Opening Ceremony of the James Miller X Ray Wing of the Weymouth and District Hospital, Nov. 3rd, 1923.

[1] Salmond, R. W. A.: Proc. Roy. Soc. Med., 1923, xvi. (Electro-Therap. Section), 71.

[2] Sicard, Paraf, et Laplane: Presse méd., Paris, 1923, xxxi., 885.

[3] Sargent, P.: Brit. Med. Jour., 1923, ii., 174.

[4] Forrestier, J., et Leroux, L.: Jour. de radiol. et d'électrol., 1923, vii., 355.

[5] Ewing, James: Mutter Lecture—An Analysis of Radiotherapy in Cancer, Trans. Coll. Phys. of Philadelphia, 1922, 3rd ser., xliv., 203. Dr. R. Knox, who kindly drew my attention to this article, has also discussed this problem in a paper which will appear in the American Archives of Röntgenology for next January.

Medicine can be recorded." "Also," they add, "there must be many abnormal cases met with by students in hospital practice, cases which are worthy of record and which give scope for the explanation of students' difficulties ; we hope that in future students will submit such cases for publication." If that hope is realised, the journal will be of great service to those students who are really interested in their work. The preparation of a case for publication (whether it appears in print or not), necessitating as it does a concise exposition of essential facts and the crystallisation of ideas, promotes clearness of thought and develops the writer's power to grasp the main issue. This is a training which the preparation of case reports for examination purposes does not give, for many students cannot disabuse themselves of the idea that examiners are impressed by flowery language and adventitious "padding"—the more pages of manuscript filled, the higher the marks. An editorial blue pencil, wisely wielded, is the best corrective for such tendencies.

The aims of the journal are rightly ambitious ; they do not stop at recording original work done in the Faculty—original humour is also called for. We quote a promising sample, two stanzas of a "romance neurologique," entitled "Le Signe de Babinski" :—

Babinski turned his toes up
When stroked beneath the sole,
The doctors in attendance
Remarked, "Mais ! ça c'est drôle !"
It puzzled them immensely,
They'd always learned, and taught,
That people turned their toes down
When tickled. So they ought !

* * *

Babinski turned his toes up,
As all of us now know,
Because his upper neurones
Had lost control below.
The only normal people
Who do the same as he,
Are tiny little "babbies,"
Until they're two or three.

The journal starts on its career appropriately with an interesting article on the history of the Sheffield Medical School by Prof. Arthur J. Hall, and there is a page of really helpful advice to the student who is about to begin his clinical work in the infirmary.

PUBLIC HEALTH IN SIERRA LEONE.

A REPORT on this Colony and Protectorate for the year 1922, signed by Mr. W. B. Stanley, Acting Colonial Secretary, has been presented to Parliament. It states that the number of European and American residents during 1922 was 1202, of whom 209 were officials, 292 military, and 701 non-officials. The population of the Colony and Protectorate, taken together, increased from 1,403,132 in 1911 to 1,541,311 in 1921, or approximately 9·8 per cent. The deaths of Europeans from climatic and non-climatic causes in 1922 numbered 13. The birth-rate in Freetown (the capital) was 16·9 and the death-rate 26·3 per 1000, the corresponding figures for the rest of the colony being 20·2 and 21·2 per 1000. According to the 1921 census the males exceeded the females by 28·5 per cent. in Freetown, and 24·3 per cent. in the rest of the colony. Owing to the non-registration of many births the available birth-rate is undoubtedly much below the actual. The preponderance of females in the Protectorate is again noticeable, the figures being 599,199 women and 421,173 men, but these figures, it is pointed out, are based on a very rough and ready calculation drawn from a small representative area in each district. The Colonial Hospital was completely destroyed by fire early in 1920, and, pending reconstruction, temporary accommodation had to be arranged. A portion of the new hospital was completed and opened in 1922. This new hospital includes three more blocks for Africans and one for Europeans, besides quarters for the resident surgeon and nursing sisters. Patients admitted during the year numbered 1269, and there were 120 deaths ; 89 operations were performed ; 10,573 out-patients were treated at the Colonial Hospital, 2282 at the Cline Town Dispensary, and 3235 at the Kissy Dispensary. At the Leper Asylum there were two patients at the beginning of the year ; there were three admissions and one death. One case of small-pox and 37 cases of chicken-pox were admitted to the Infectious Diseases Hospital, of which one chicken-pox case died from senility. To the Nursing Home there were 126 admissions, 37 being Government officials ; 55 were cases of malaria and four of blackwater fever ; one official and six non-officials died. The climate is tropical, with a heavy rainfall and high atmospheric humidity during the greater part of the year. There is a single rainy season lasting roughly from May to the end of October. This constitutes the period of the south-west monsoon ; it is preceded and followed by a period of thunderstorms known as tornadoes. July, August, and September are the months of heaviest rainfall. In December and January Sierra Leone comes into the region of the north-east trades, and the resultant wind known as the "harmattan," blows from N.N.E. ; it is an exceedingly dry wind, and is accompanied by a thick haze probably composed of minute particles of dust. During this period there are cool nights and hot days. The lowest mean temperatures are usually recorded in the months of July and August. There are facilities for playing cricket football, tennis, and golf, and any European who wishes to play can get opportunities of doing so. The country is hilly, and cycling is in consequence laborious, and horses do not thrive, but for some distance out from Freetown the roads are good enough for motor-cars and motor-cycles to be used. The town enjoys a splendid pipe-borne water-supply the catchment area being situated in the mountains, where there is a large reservation of land.

A POPULAR GUIDE TO TRAVEL.

WE have received the first fortnightly part of "The Outline of the World To-day," edited by Sir Harry Johnston and Dr. Haden Guest (George Newnes, Ltd., 13 Southampton-street, London, W.C. 2, 1*s.* 2*d.*). The Outline, which is to be completed in about 24 parts, aims at giving an impression of the life and attractions of other lands. "We never use our eyes until we are on foreign soil," writes Mr. E. V. Lucas, and the editors of the Outline realise that it is not possible for the majority of people who visit a new country to discover everything for themselves. The Outline is written by experts in travel, and is not so much a guide-book as "a philosopher and friend, ready to conduct readers over the globe withou wearying them with cumbersome details." The first par deals with France as a whole, the land and the people following on with a more detailed study of Normandy and Brittany, the form and manner of government, and a description of selected spots of special beauty and interest. Maps are provided which will render the work when complete a reference atlas of the world. The Outline appear opportunely when facilities for travel are slowly becoming more normal, while a healthy desire to see and observ habits and manners other than our own is growing up all around.

SUPERINTENDENT NEEDED FOR A CHILDREN'S PREVENTIVE HOME IN AUSTRIA.

AN advertisement appears this week in our columns fo a resident lady superintendent with a good knowledge of the German language, to take charge of a British home fo Austrian children. Schloss Grafenegg, near Liezen, where the home is situated, formerly the country seat of Baron Dumba of Vienna, lies at an altitude of 2200 ft. on a wooded slope overlooking the valley of the Enns in Upper Styria. Owing to currency difficulties this home was on the point of being closed when it was taken over by the British Home fo Austrian Children, Ltd., an association formed for the purpose. Prolonged malnutrition has seriously undermined the natural vitality of many children in Austria and the menace of tuberculosis is serious. Should a child on the first signs of disease be removed to healthy environment and properly fed under medical supervision, a definite cure follows almost as a matter of course, and the home is to be run on the lines of a preventorium rather than as a sanatorium proper. Parents are invited to contribute as much as they can afford and it is intended to make the home self-supporting from the development of the farm as a pedigree stock centre. The qualifications required for the superintendent are good organising ability, knowledge of nursing, and some institutional experience, as well as a working knowledge of the language. Preference will be given to some one who has already worked or resided in the country.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. F. G. Wilson is placed on the ret. list.
Surg.-Lt. B. S. Collings to be Surg. Lt.-Comdr.
Surg.-Lt. N. A. H. Barlow to be Surg. Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Maj. A. C. Vidal is placed on the half-pay list on account of ill-health.

ROYAL AIR FORCE.

W. J. Hutchinson is granted a short service commission as a Flying Officer.

After the memorial service on Armistice Day, the Assistant Director of Medical Services (London District), and a detachment of the Royal Army Medical Corps, will deposit a wreath on the Royal Army Medical Corps war memorial tablet in Westminster Abbey.

An Address
ON
COMMERCIAL INFLUENCES IN THERAPEUTICS.

Delivered before the Section of Therapeutics of the Royal Society of Medicine

BY ALFRED J. CLARK, *M.C.*, M.D. CAMB.,
F.R.C.P. LOND., D.P.H.,
PROFESSOR OF PHARMACOLOGY, UNIVERSITY OF LONDON;
PRESIDENT OF THE SECTION OF THERAPEUTICS.

CERTAIN work done during the past few years in examining widely advertised proprietary medicines impressed upon me the light-hearted manner in which some firms made sweeping therapeutic claims for their products, claims in support of which they had little or no direct evidence. In addition I found that when evidence was laboriously collected which indicated that these claims were erroneous, this usually made no difference whatever in the advertised statements. I was therefore naturally led to inquire as to what safeguards existed in England to ensure that the claims made in advertisements of drugs were at least not demonstrably false. I found, as a matter of fact, that no such safeguards existed. Reputable firms, out of regard for their good names, are, of course, careful as to what claims they make in advertisements, but beyond this the public has no protection. In my opinion this state of things is extremely prejudicial to the progress of therapeutics, and it is highly desirable that the medical profession should devise some sort of organisation for its own protection in this regard.

The quack is, of course, as old, or older, than the medical profession, but the exploitation of therapeutics by large commercial concerns was a development of the latter half of the nineteenth century mainly due to the rise of modern methods of large-scale advertisement. A company with extensive capital can employ more skilled assistance in conducting propaganda, and hence there is a general tendency for the cruder forms of gaining the public ear to disappear and to be replaced by much more refined methods.

The capitalisation of the drug industry has brought many very important benefits to medicine, for it has rendered possible the production of drugs of uniform quality, and it also has been of great help in the organised search for new remedies, yet it has introduced new evils.

There is no need to remind you that the trade in secret or quack remedies is an unmixed evil, but it is important to remember how large and powerful is the quack medicine trade. It was recently estimated that the capital employed in America in making secret remedies was larger than that employed in the legitimate drug trade. In England it was estimated that in 1913 more than £4,000,000 was spent in such remedies, and that the trade spent £2,000,000 in advertising. I mention these facts as evidence that very powerful and extensive commercial interests are engaged, and as I shall show later, there is no guarantee that this trade may not turn its attention to the medical profession if it conceives that exploitation of the medical profession will yield quicker profits than exploitation of the general public. At present the medical profession has practically no organisation available for its defence against such a move.

PROFESSION AND PUBLIC ALIKE UNPROTECTED BY LAW.

It is important to note that the law affords no protection whatever to the public or to the medical profession against any form of exploitation by proprietary medicine vendors, as long as these avoid the laws relating to obscenity. The law on the subject was summarised in the report of the Select Committee on Patent Medicines in 1914[1] as follows:—

> 22. The situation therefore as regards the sale and advertisement of patent and proprietary medicines and articles may be summarised in one sentence as follows. For all practical purposes British law is powerless to prevent any person from procuring any drug or making any mixture, whether potent or without any therapeutical activity whatever (so long as it does not contain a scheduled poison), advertising it in any decent terms as a cure for any disease or ailment, recommending it by bogus testimonials and the invented opinions and facsimile signatures of fictitious physicians, and selling it under any name he chooses, on the payment of a small stamp duty, for any price he can persuade a credulous public to pay.

The same Committee also came to these additional conclusions:—

> 55. (7) That the existing law is chaotic and has proved inoperative, and that successful prosecution for fraud in the advertisement and sale of secret remedies is fraught with the gravest difficulty, although the public prosecutor has perhaps not sufficiently tested the powers of the existing law in respect to such cases. (8) That consequently the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of improprietary, is practically uncontrolled in this country.

The objection will at once be raised that these paragraphs refer to the obvious nostrums advertised in the lay press, nostrums which the medical profession has consistently denounced, and which really are of little concern to medical men. Unfortunately, it is impossible to make any easy definition which will divide such blatant frauds from proprietary medicines of highest therapeutic value. These extremes are so utterly dissimilar that it is hard to believe there is any relation between them, yet every possible intermediate grade exists, and it is a matter of utmost difficulty to establish any formula to determine which proprietary articles should be recognised by the medical profession and which should be condemned. There is, in fact, no definite line that can be clearly drawn between quack medicines and reputable proprietary articles.

There are, of course, certain classes of articles that the medical profession can condemn at once. Secret remedies require no discussion, for it is contrary to every professional tradition for a doctor to prescribe a remedy of whose composition he is ignorant. The advertisement of a secret remedy is, however, merely an indication of a lack of ingenuity and imagination on the part of the manufacturer. Nothing is simpler than to give a formula, and to claim either that one of the ingredients is obtainable only by the manufacturer, or that the value of the medicine depends upon the exquisite skill with which the ingredients are prepared and compounded.

THE ASTUTENESS OF THE ADVERTISER.

The rule that articles are to be advertised to the medical profession only is also absolutely worthless as a guarantee against fraud. Advertising to the public direct is expensive, whilst advertising to or even circularising the medical profession is relatively cheap. Hence it may pay better for a firm to confine itself to the medical profession. The same form of advertisement will not, of course, appeal equally to the lay mind and the medical man, but a skilled advertiser can exploit the latter. This danger became acute some years ago in America. I quote some remarks by Dr. G. H. Simmons, Editor of the *Journal of the American Medical Association.*[3]

> It has become a recognised fact in the patent medicine field that the easiest and cheapest way of reaching the public is through the doctor. Let me quote a paragraph that appeared in *Printers' Ink*, an advertising journal (about 1903). The words are those of a patent medicine man, and they are not directed to the medical profession. "But the patent medicine of the future is one that will be advertised only to doctors. Some of the most profitable remedies of the present time are of this class. They are called proprietary remedies. The general public never hears of them through the daily press. All their publicity is secured through the medical press, by means of the manufacturers' literature, sometimes gotten out in the form of a medical journal, and through samples to doctors. . . .

The original bottle is given to the patient; he sees that the remedy does him good, and when he feels a trifle run down again he goes to a drug store and buys another bottle, not troubling the doctor. He meets a friend on the street who is not looking well. 'I know exactly how you feel,' he says. 'Now just go and buy a bottle of . . . Best thing in the world. My doctor prescribed it for me, so it isn't a patent medicine.' In this way the names of remedies advertised only to physicians get abroad to the general public. The proprietary medicine of the future though will be advertised through these channels. The medical papers will reap the harvest, and the physician himself, always so loud in the denunciation of patent medicines, will be the most important medium of advertising at the command of the proprietary manufacturer."

Dr. Simmons concludes: "Have you ever seen an arraignment of this evil by its enemies which equals this cynical statement by its friends?" This quotation is, I think, sufficient to show that there are no simple rules by which the medical profession can protect itself against exploitation.

There are, as I have said, a vast range of proprietary medicines varying from valuable scientific preparations, such as the best brands of organic arsenical preparations down to the lowest form of quack frauds. The law is absolutely impotent, and medical men have got to make up their minds what they are prepared to recognise and what to reject. Huge commercial interests are involved, for it must be recognised that the more nearly a preparation approaches a fraud the more likely it is to reap a rich immediate harvest. Obviously an unscrupulous manufacturer will consider what types of chronic diseases are particularly refractory to treatment, and choose in preference those which are painful and afflict well-to-do patients. Such diseases are, of course, the despair of the general practitioner, and he will always be ready to try anything new that can possibly be of benefit. In preparing the remedy the manufacturer will probably select some new scientific discovery which is a novelty, and whose powers are still undefined. It is a great advantage, of course, if the substance is such that there is no easy method of testing its purity or activity. Any nostrum can obtain support from some medical man or another, if not in England at any rate on the Continent, and then the rest is easy, a commercial interest is there ready to boom the preparation; and it is not the business of anybody to check the statements made. Obviously the general practitioner who is not an analytical chemist, nor an experimental pharmacologist, nor a secret inquiry agency, has no means of testing the inherent probability of a new remedy. On the other hand, the exploiters of a new remedy have the power of money behind them to promote the sales and profits.

As regards the attitude of medical men to doubtful proprietary remedies, the following extracts from the Select Committee on Patent Medicines are of interest:

> 29. With regard to advertisements in the medical press, we consider that adequate censorship has not in all cases been exercised, as, indeed, was admitted by Dr. Cox, the representative of the British Medical Association, and instances to this effect will be found in the evidence received.
>
> 47. We have learned, however, to our great surprise, that persons of influential social positions and small means will sell the use of their names to advertise secret remedies; that large sums of money are expended in canvassing medical men; that many medical men give testimonials (with the use of their medical qualifications, but without the use of their names) to proprietary and secret remedies, and allow themselves to be made, as a medical man declared in a public address, "the catspaw and fool of the fraternity of the secret remedy"; and that there are medical men who prescribe to their patients remedies of this class of whose composition they are themselves largely ignorant. We have evidence in two cases of medical men acting as directors of companies manufacturing secret remedies.

The evil of proprietary medicines developed, perhaps, to a greater extent in America than in this country. The evil first became obvious about 1879, and early in the century the position was defined as follows by Dr. Simmons[3]:—

> Conditions in this regard had become so disgraceful . . . that there seemed to be no statement too silly, no claim too extravagant, and no falsehood too brazen for use by those who wrote the advertising literature that physicians
> are asked to read and believe. . . . In brief, this busine
> the annual profits of which run into millions, has grown un
> the use of proprietary medicines by many physicians h
> almost displaced the use of the individual official drug.
> has checked advance in scientific methods of treatme
> inhibited intelligent clinical observation, and developed
> optimism that is unwarranted by facts, an optimism th
> is more fatal than the most radical therapeutic nihilis
> But above and worse than all, this commercialised mate
> medica has blighted our literature by debauching o
> medical journals and even by tainting our text-books.

These are strong words, and picture an evil som
what worse than any that we have in this count
to-day. These evils produced, however, a reacti
in America, and steps were taken to check the e
whereas in our country it still flourishes unchecked.

AMERICAN AND BRITISH METHODS OF COMBATING QUACKERY.

The American Medical Association in 1905 appoint
a council on pharmacy and chemistry composed
leading chemists, pharmacologists, and clinicia
These examined all proprietary remedies, and pu
lished a list and description of all such remedies
conformed to certain simple rules. This list
published annually under the title of "New and No
Official Remedies."[4] Substances which are reject
are dealt with in the volumes, "Nostrums a
Quackery" and "Propaganda for Reform." The ru
upon which the council worked were roughly as follo
The drug must not be of secret composition, must n
be advertised directly to the public, and must not
advertised indirectly to the public by means
literature sent with the bottle stating the dise
it is intended to cure; the name must not sugg
therapeutic claims; unwarranted, exaggerated,
misleading statements as to the therapeutic va
must not be made; and no article is accepted which
useless on account of its unscientific compositi
Of these rules the last two are obviously larg
matters of opinion, but are perhaps the most import
of all. The American medical practitioner, therefo
who is deluded by specious advertisements i
recommending some useless nostrum, has only him
to blame, since he is acting against the conside
advice of a body of expert opinion.

In other countries also an attempt has been made
set up some machinery to judge the claims of adverti
ment of proprietary articles. The *Medical Journal*
Australia,[5] for example, has arranged to cond
analysis of Australian proprietary products submit
for advertisement. In Holland[6] the Rijks-Institu
voor Pharmace Therapeutisch Onderzoek has c
ducted a series of analyses on patent and propriet
preparations. In the case of the latter the combi
chemical, pharmacological, and clinical tests ha
been undertaken, providing very valuable informati

In this country valuable work has been d
by THE LANCET in publishing chemical analy
of proprietary preparations. The British Medi
Association ten years ago did a particularly valua
public service in publishing the two excellent volum
"Secret Remedies, What They Cost and What Th
Contain."[2] The British Medical Association, moreov
has passed various resolutions regarding preparati
which it is prepared to accept for advertisement in
publications. The most important regulations exclu
advertisement containing any demonstrated fa
statement, and preparations the principal ingredie
of which are not disclosed to the profession, a
preparations which are advertised elsewhere in
misleading or objectionable manner.

THE NEED OF EFFECTIVE CONTROL.

The measures which have been taken in Engla
are of value, but I think that it is clear that nothi
short of an organisation permitting extensive chemi
and pharmacological tests, and in certain cases ev
clinical tests, is sufficient to give reliable informati
on the really important point—namely, whether t
therapeutic claims made for a proprietary remedy
based on reasonably satisfactory evidence. Americ
experience has demonstrated that it is possible
provide such a source of information, and that it is

great service to the medical profession, but it has also shown that the work is difficult and expensive, and that if effective is certain to arouse furious opposition from the vested interests it injures. The object of my paper is to point out the desirability, nay, even the necessity, of having some organisation in this country to perform a similar work.

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The Principles of SYMPTOMATOLOGY:

AN INTRODUCTION TO A NEW OUTLOOK IN MEDICINE.

BY SIR JAMES MACKENZIE, M.D. EDIN.,
F.R.C.P. LOND., F.R.S.

(From the St. Andrews Institute of Clinical Research.)

IN THREE PARTS.—PART III.

In Part I. (THE LANCET, *Nov. 3rd) there was outlined the general problem of ill-health and the new outlook in its respect. The principle of the "reflex arc" was explained. In Part II. (Nov. 10th) the cell and the law of fluctuation were considered and the afferent nervous system and the generation of impulse.*

8. STIMULATION.

We have seen that individual cells vary in their excitability—the process of recovery after stimulation varying according to a variety of circumstances. The question has to be considered how these cells act when in a community as when they constitute an organ. We know that organs vary in their functional activity, and there must be a great difference in the activity of these cells when the organ is working at the full extent of its powers and when its functional activity is reduced to the quiescent or resting stage. In the description of "fluctuation" it was suggested that when an organ is acting at full activity all the cells may be engaged, but that as it passes into quiescence some of the cells gradually become less excitable and take longer to recover, so that at one time one group of cells is active and at other times other cells are active, and in this way is brought about that variation in the activity of organs which is necessary to meet the requirements of the body in the ever varying circumstances of life.

As we proceed in our investigation we find this fluctuation universal, and it is impossible to understand such subjects as the stimulation and functional capacity of organs unless it be taken into consideration. To show the importance of fluctuation it may suffice to call attention to a factor which lies at the root of every problem—namely, stimulation. The varying activity of an organ is frequently due to the increase or decrease of nerve stimulation. When a nerve is stimulated the accepted teaching is that if it responds it does so with all its power, whether the stimulus be a weak one or a strong one, following the law of "all or nothing." When, then, a nerve is stimulated and an increased activity is shown by the organ which the nerve supplies, the response of the organ cannot be due to the *strength* of the stimulus, inasmuch as each nerve response is maximal. The only other alternative is that it must be due to an increase in the number of impulses.

The question then arises: In what way can the number of impulses be increased? The answer is simple, either by the increase of the number of impulses in a unit of time, or by an increase of the number of cells (neurones) taking part in the stimulation. It was not easy to decide which of these two ways are concerned in stimulation, until we applied the results of our observations on the skin, to which reference has been made. It was found that there were really no permanent "hot and cold spots." At one time small areas were sensitive and other areas were insensitive. At other times the sensitive areas became insensitive, and the insensitive areas became sensitive.

One aspect of the problem of stimulation was solved in a simple manner. A mustard leaf was applied to the skin and it was afterwards found that practically every point of the surface became sensitive to warmth. The conclusion drawn from this experiment is that stimulation means an increase in the number of receptors rendered active. Applying such results to the explanation of stimulation, a quiescent state means that all the cells of an organ are not acting, but when "stimulated" more or all of them become active. The application of this law of fluctuation to the interpretation of normal reactions as well as symptoms, clears up many obscurities. The law of "all or nothing," for instance, which has been accepted as explaining certain of the features of nerve activity and of the heart is wrongly applied in that while it is true of the individual neurone or of the individual muscle fibre, it is not true of the organs of which they are constituent elements. The recognition of this permits us now to understand the ability of organs like the heart to respond to effort, for the commonly accepted law that when the heart responded by "all or nothing" prevented us understanding how it could vary its activity, and rendered it impossible to understand the production of heart failure. The manner in which an excitable part of the reflex arc may increase the number of impulses which reach the effector organ and produce a symptom is explained by the law of fluctuation. Under normal circumstances, and especially when quiescent, only a portion of the cells which constitute a unit in the reflex arc are functioning. Certain agents, as a rise of temperature, the toxins of disease, or a drug, increase the excitability of a unit by increasing the number of cells which are functioning at a given time. The result will be that a stimulus reaching this unit will, under normal circumstances, excite only a few cells of that unit, but if rendered excitable under the influence of the factors or agents mentioned above, the same stimulus will set in action a much greater number of cells.

As this variation may take place at different parts of the reflex arc, we find symptoms due to disturbances at the receptor or in some part of the conducting system, or at the effector part of the process. This is well seen in the case of the heart. In the normal acting heart its rhythm is dependent upon the pacemaker—the sino-auricular node, Fig. 4. An increase in rate may arise from an increase of impulses at the receptor end of the reflex. An increase in the heart rate has been shown to be produced by contraction of the muscles of the calf (Fig. 7). Here the increase of rate is due to the increase in the number of impulses produced by the contracting muscle.

Another proof of the production of symptoms by diminished resistance to stimulation is seen in the different ways in which vomiting is produced. The production of vomiting by an increase of impulses will be commented upon in dealing with the contraction of hollow viscera, as in renal colic. Vomiting may be produced by a stimulus which in ordinary circumstances has no such effect. When a person sickens of some febrile complaint, or in transient attacks of ill-health (like migraine), sights, sounds, or smells, which in health produce no effect upon the processes concerned in the act of vomiting, may readily provoke nausea and retching. Emetic drugs act in the same way. They do not themselves produce vomiting, they merely lower the resistance to stimulation of some part of the reflex arc, so that impulses which in health would produce no result, in these altered circumstances produce vomiting. Strychnine and the toxins of rabies do not produce convulsions, they merely render certain parts of the reflex arc so excitable that normal impulses reaching them produce an exaggerated effect. A decayed tooth often sets up pain and a hypersensitive state of the neighbouring tissues. Sometimes the skin of the cheek becomes hypersensitive, so that stroking of the skin or the hairs of the cheek produces pain, while on the other cheek the same stimulus produces only the sensation of touch.

An increase in the sensitiveness of the skin and deeper tissues is common in a great many diseases, especially those of the abdominal organs. As the tissues which are rendered tender, and the area in which the tenderness occurs is very definite, the symptoms become a valuable diagnostic aid in the hands of those who know how to use it. It will become still more valuable when we discover the nature of the vital processes which are capable of producing it. Here, however, we are concerned with the changed conditions which render the skin and deeper tissues hypersensitive. The fact that stimulation of the skin provokes pain in a limited region, while the same stimulus produces only the sensation of touch or pressure when applied to other regions, indicates that somewhere between the receptor end of a nerve in the skin and the centre of consciousness there is a part whose resistance to stimulation is diminished. It would be too speculative to indicate the exact part—the recognition of the fact is sufficient for the present. The part of the central nervous system which is rendered irritable as shown by these localised areas of hyperalgesia is of small extent. A similar disturbance can be of greater extent and not necessarily associated with cutaneous hyperalgesia. In the condition called the status anginosus, the repeated attacks of angina pectoris have lowered the resistance to stimulation of some part of the central nervous system to such an extent that impulses from other regions than the heart may produce severe attacks of the pain, exactly like those of angina. The pressure of the stethoscope under the left breast, the movement of the left arm, may readily provoke an attack of agonising pain identical with that which follows bodily effort.

This facilitation of impulses may become generalised. In what is called neurasthenia we get evidences that many symptoms are rendered possible because of the lowered resistance to stimulation. Under such circumstances, the normal activity of an organ may result in the production of symptoms identical with those which are produced by disease of that organ. This lowered resistance is probably always due to some agent acting upon some unit of the reflex or regulating process—not affecting equally the processes of all organs. The result is an excessive activity of one or more organs, and the complaint is apt to be attributed to the organ whose activity is most prominent, hence the different names given to neurasthenia—gastric, cardiac, mental, &c. It is not always possible to recognise the primary agent in the production of neurasthenia, but occasionally we meet with instances that leave little doubt as to the origin of the trouble, as in the following.

A woman of 53 fell into ill-health, at first of a vague, indefinite "neurasthenic" kind. After some months the heart became irritable and pain was felt in the left chest. The pain increased in severity and occurred in attacks identical with those of angina pectoris and were looked upon by her medical attendants as being of this nature and of a grave type. After some months of this suffering an abscess burst into the bladder, and there was a profuse discharge of pus in the urine. From this date the attacks of angina completely ceased and a good recovery followed.

Surgeons are well acquainted with patients who suffer from severe gastric symptoms which lead to the view that there is some organic trouble in the stomach. Operations have repeatedly demonstrated that there is nothing amiss—organically—with the organ. The explanation seems to be that in certain states of lowered resistance the normal function of the organ gives rise to impulses which in health pas into the central nervous system unperceived, bu with the resistance of some part of the nervou system lowered, these impulses produce effects whic are looked upon as symptoms of disease.

Such seems to be the explanation of the followin experience :—

A youth suffered from an attack of gall-stone colic wit jaundice. There appeared after the attack of pain an are of cutaneous hyperalgesia—very acute—over the upp part of the abdomen on the right side. The stone wa passed per anum and the attack of pain ceased, but th hyperalgesia persisted for a few days. For some days aft when the patient took a meal he always suffered from pa in the epigastric region. As the hyperalgesia disappeare the pain became less severe, and when the hyperalgesi was gone the pain ceased. The interpretation we give such an experience is that the impulses from the musc fibres of the gall-ducts had temporarily rendered some pa of the central nervous system hyperexcitable, so that sligh stimulation reaching it, either from the skin or from th stomach, produced an exaggerated effect shown by pai With the gradual subsidence of the excitability the impuls from the skin and stomach ceased to produce pain.

While stimulation is due to the increase in th number of cells (neurones) participating in sendin the stimulus, it may also arise from increase excitability of the cells. Thus the s.-a. node whic regulates the heart beat can be rendered mor excitable in a number of ways. When the hea increases in rate it is due to the increased excitabilit of the s.-a. node or in abnormal rhythm of the a.- node (Fig. 4). That is to say, the recovery after th node has discharged its impulses is expedited. Thi may be due to a number of factors, as the rise temperature in feverish states, the action of dru and toxins, the increase of impulses from the brai or periphery, the diminution of vagal control, & If it is desired to understand the reason for a increased pulse-rate the application of the princip of the reflex arc compels the analysis to find th element at which the disturbance takes place an which of the causes just enumerated is operative.

9. Increased Impulses from Muscle.

While we have undoubted evidences that the cell of an organ generate impulses which can affect othe organs when they function we have to consider th part they play in the production of symptoms. I describing the production of goose-skin by stimulatin the skin it was shown that impulses were not sen only to one organ but spread widely, affecting number of organs, and the reason that such effect may not be recognised is due to the fact that we d not possess the means of detecting them in the health body. But when the agents of disease disturb th functions of organs by increasing or decreasing the activity, then the evidence of the presence of thes impulses may be detected in the disturbance of number of organs.

The muscular system, by reason of its wide rang of activity and of its susceptibility to stimulation, is fertile source for the production of impulses. When muscle is at rest it is in a state called "tone." Thi is maintained by the action of its cells, but all are no acting simultaneously. Each cell alternates betwee periods of rest and of activity. Muscles are liable t be stimulated to excessive effort, and when thi happens many more muscle cells contract and th impulses that arise are greatly increased in numbe These impulses being conveyed by afferent nerve into the central nervous system, stimulate the organ whose efferent nerves they reach into unusua activity. In this way is produced a peculiar train o symptoms the result of increased muscular activity.

It has long been recognised that some of the severes pains are associated with hollow muscular organ The explanation of this seems to be as follows Muscular organs consist of a great number of muscl cells. In the performance of their normal functio they contract with varying degrees of strength. S long as the contractions are moderate in degree n sensation is experienced. In these circumstances ording to the law of fluctuation, all the cells do t act at one time, some being active and passing o quiescence, while others pass out of quiescence o an active state. When moderate stimulation es place and the muscle is roused to greater ivity an increased number of cells are brought o action and fewer are quiescent. With still ater activity all the cells may be forced into ivity. Each cell when it passes into activity ows out an impulse and these impulses, we have n, are taken up by afferent nerves and conveyed o the central nervous system, where they stimulate nerves that supply other organs. There is bound be a greater outflow of these impulses with increased ivity, and in this way more afferent nerves are mulated, producing the results which occur in the ious colics—pain, nausea, vomiting, pallor, retching, . This interpretation also affords an explana- n why, of all the organs of the body, the hollow scular organs give rise so readily to pain and other nptoms, in that the muscle is the organ most ily stimulated to violent activity. We possess le or no power of increasing the functional activity the cells of the kidney, liver, pancreas, &c., and ice it is that severe pains are not associated with ections of these organs. That they may give rise disturbances of a milder sort is quite likely, eed, our researches indicate their presence, but so we are not able definitely to demonstrate their ation to this cause.

While the evidence which reveals the nature the stimulus which produces symptoms is mostly erential, rare opportunities arise which bring more closely to the real cause. The following perience demonstrates the relation of pain to iscle contraction :—

A man had a fistula at the umbilicus communicating with small intestine. An operation was decided upon. The ient refused an anæsthetic, and as the skin around the ning had ulcerated away an incision through the lominal wall was made with little or no suffering. The lominal cavity was thus laid open and numerous peritoneal esions broken down and the patient felt nothing. The vel and mesentery were cut and stitched and no sensation s felt. After preparing the upper part of the bowel it s wrapped in a warm cloth and laid on one side. During subsequent steps of the operation the patient frequently aned. He was asked if he felt pain and he replied that did. He was asked where he felt the pain, and he indicated h his hand that it was across the middle line at the level the umbilicus. It seemed at first that the pain might be e to the part that was being manipulated, but the pain s intermittent. Chancing to look at the prepared upper t of the bowel that lay on the left side of the abdomen, was observed that every few minutes a peristaltic wave sed over the lower portion of it, and when this occurred patient moaned in pain. To make certain that the pain s connected with the peristaltic wave the peristalsis s produced several times by lightly pinching the bowel. ery time the wave was produced the patient felt the pain d the pain ceased when the peristalsis stopped.

It is well known that the various colics—bowel, al, and gall-stone—are associated with more nptoms than pain, and there is good reason for erring that the processes which are concerned in ir production are similar to those which result in n. The following two observations illustrate the d of phenomena which occur during renal colic :—

A man, aged 30, had suffered for a year from occasional acks of renal colic, and one attack had been followed by maturia. He was a very intelligent man and was told to e every particular during an attack. The following is a nmary of his statement—the statement being illustrated the patient placing his hand over the regions mentioned : pain suddenly seizes him with great severity in the right ibar region, then after a few minutes it strikes into the nt of the abdomen over the iliac fossa. Then the belly omes hard and rigid. The pain then strikes down into inner side of the groin, the testicle is felt to be drawn up, l the pain then shoots into the testicle. The facts here cribed were corroborated by him in a few subsequent acks, each attack invariably pursuing the same sequence. tes made after an attack describe an indefinite area of aneous hyperalgesia over the iliac fossa, hardness and idity of the abdominal muscles over the right iliac fossa h great tenderness on pressing over the abdominal muscles and on the right testicle and on the spinal muscles in the lumbar region. The fact that the pain always started at the same place indicated that the stone remained fixed in its position, a view confirmed in that there was never any evidence of the calculus having reached the bladder. An X ray photograph failed to reveal the stone. He was operated upon and a small calculus about the size of a pin's head was found adherent to the apex of a calyx opposite the junction of the middle and lower third of the pelvis of the kidney. This was removed and the patient made a good recovery and remained quite free from all symptoms.

The conclusion suggested is that the presence of the calculus at times provoked the muscle of the ureter to violent peristalsis, and that this was the source of the impulses which provoked the train of symptoms.

A male, aged 34, suffered from severe attacks of pain in the abdomen accompanied by great hardness of the muscles of the abdominal wall. The attacks of pain were accompanied sometimes with vomiting, and as the bowels had not been moved and no flatus had passed the condition at first resembled that of obstruction of the bowel. An examination revealed a somewhat distended abdomen with great rigidity of the muscles. This form of contraction also affected the muscles of the anal sphincter, for it was with the greatest difficulty an exploring finger could be forced into the rectum. The patient's description of the pain, its site and radiation was rather confused, but at the end of the examination he was seized with an attack of pain. The pulse became slow and soft. He became pale and sweat poured out. He was asked to put his hand where he felt the pain and he indicated the left lumbar region. As the pain increased in severity it shifted round to the front and remained definitely fixed over the left iliac fossa. After a few minutes it passed off. A diagnosis was given of renal calculus. An opiate was prescribed and next day a calculus the size of a pea was voided with the urine, and all the symptoms disappeared.

The group of symptoms just described as occurring in attacks of renal colic, involves the abnormal activity of afferent nerve fibres. In such instances we see the wide range of their effect, inasmuch as they convey impulses which disturb many organs widely sundered, as in the production of nausea and vomiting, depression of the heart's action, pallor and sweating, contraction of the abdominal muscles, pain, and cutaneous hyperalgesia. We can further infer that in the normal processes of life impulses are conveyed from all active organs into the central nervous system, and these impulses act upon the processes concerned in regulating those organs which give rise to such striking symptoms—as the brain, heart, the stomach, the muscle of the abdominal wall, the vaso-motor system, the sweat glands, &c. The best example of this action is the pain set up by uterine contraction. All the phenomena just described as occurring in renal colic can be made out with each labour pain. The same phenomena occur even in the unimpregnated uterus during menstruation, or when a foreign body is introduced into the uterine cavity.

But there is more in the matter. It is customary to speak of such pain as being due to stimulation of a pain nerve which supplies the ureter or uterus. When all the facts are considered it will be found such an inference is unnecessary. The fact that vomiting occurs during an attack of renal colic does not imply that there is a special vomiting nerve distributed to the ureter, or because the heart's action is modified that there is a special cardiac nerve, or because pain is felt that the ureter is supplied with a pain nerve.

It can be more reasonably assumed that the impulses which arise during violent contraction are greatly increased in number, and that the various disturbances (or symptoms) which result are due to the increased number of impulses which react on those parts or "centres" in the central nervous system which habitually receive the impulses in health. That is to say, pain does not arise in these muscular organs because they are supplied with a nerve whose special function is to convey a "pain" stimulus; but pain, like vomiting and other manifestations, is caused by the greatly increased number of impulses that reach the pain, vomiting, and other centres in the central nervous system.

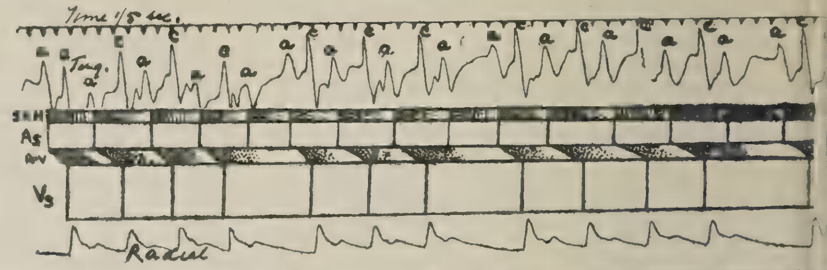
10. INHIBITION, BLOCKING OF IMPULSES, AND PARALYSIS.

We have seen that, as a result of disease, the impulses may be increased in number at their origin or during their transmission, and an undue activity of the organ may result, giving rise to symptoms. The reaction may be in the opposite direction, and depress or suppress the function of organs. This may be brought about in several ways, as by structural changes, or by defective blood-supply, or by the agents of disease acting upon the parts which regulate the organs inhibiting or blocking the impulses. It is the last of these that is being considered here.

The blocking of impulses is but an exaggeration of that normal increase of resistance to stimulation which occurs in every cell during and after exercising its function. The blocking of impulses at the auriculo-ventricular node affords the best illustration of the production of symptoms in this manner.

A girl of 14 recently fell ill of a slight febrile attack, during which her pulse became irregular. This irregularity continued for two days, after which the rhythm became regular and the girl made a complete recovery. A simultaneous record of the radial and jugular pulses (Fig. 8) shows that the auricle (waves, *a*, in the jugular record) contracted regularly, but that the ventricle (waves (*c*) and the radial pulse) did not respond to every auricular wave. This is brought out in the interpolated diagram. The shading in the space S.-A. N. represents the discharge of impulses from the sino-auricular node, the shading representing the refractory period. The down strokes in the space As represent the auricular systole (*a*) in the jugular tracing, and the down strokes in the space Vs represent the radial pulse (ventricular systole). The space A.-V. represents the auriculo-ventricular node. The shaded portion of the A.-V. space represents the period when the node was incapable of stimulation, and it is shown that every now and again the auricular impulses fell during this period and failed to reach the ventricle, so that a ventricular systole fell out—that is to say, the pauses in the radial pulse which produced the symptoms of irregularity were due to the blocking of impulses by an undue increase in the resistance to stimulation of the cells of the A.-V. node.

FIG. 8.



Tracings of the jugular and radial pulses. In the jugular tracings the auricular waves (*a*) regular, but the radial pulse shows intermissions. The waves (*c*) are due to the car and correspond to the radial beats. In the diagram the intermissions are shown to be to blocking of impulses at the A.-V. node. The down strokes in the space As represent auricular waves (*a*) in the jugular tracing, and the space Vs the ventricular systoles a radial pulse. The space A.-V. represents the A.-V. node, and it is seen to be here that block takes place—the shading in the spaces S.-A. N. and A.-V. represents the refract period of the sino-auricular and auriculo-ventricular nodes. The diagram illustrates principles of the reflex arc.

Another instance of the same kind is found in certain paresis or paralysis such as that which follows diphtheria. Here the toxin of diphtheria picks out certain parts of the regulating process, and blocks the impulses which should reach the muscle. The part affected is probably some part of the efferent or motor nerve to the muscle. In all likelihood the condition known as "suppression of urine" results from a similar disturbance. But we know so little of the processes that regulate the function of the kidney or other organs that it is not possible to hazard more than a guess at the cause of this and many other functional disturbances. Clear-cut examples of symptoms produced by hindering or blocking of impulses are not common, partly because we do not know how to detect them. This is due not only to our defective knowledge of the regulating processes, but also to the peculiar manner in which the suspension of activity is manifested. In the regulation of the functions of organs there are nerves whose functions favour and others whose functions depress the activity of organs, like those supplying the dilator and constrictor muscle fibres of the pupil and the vagus and sympathetic supply of the heart. Impulses from these nerves may be blocked. Blocking of impulses may affect the parts normally concerned in increasing the resistance to stimulation—i.e., inhibition. The removal of this influence permits the opposite influence to act unchecked, so that the blocking of impulses may result in the organ exhibiting signs of increased activity. This part of the subject becomes cleare from the study of the phenomena produced by th action of drugs and allied substances.

This blocking of impulses may result in paralysi The term paralysis is usually applied to the loss voluntary control over a muscle whose connexion wit the cerebral cortex is severed. It has been als applied to other organs whose functions are controll by nerves when this control is lost, as in the so-call paralysis of glands like the salivary, vaso-mot paralysis, &c. It is of great importance to recogni what happens when a muscle or other organ is depriv of its nerve-supply. It must be remembered th they are supplied with other nerves and with bloo and that the cells have functional potentialities ev when separated from their nerve-supply. Invest gation on these lines reveals a great many resul which give rise to symptoms of disease. Referen has been made to the fact that when a muscle los its connexion with a motor nerve it does not lie ine but passes into fibrillation. When the sino-auricul node ceases to act the auricle passes into fibrillati and flutter (see Fig. 6), and the impulses which t muscle fibres of the auricle throw out affect t A.-V. node, giving rise to very definite signs, such as rapid and irregular pulse (delirium cordis). It is ve likely that delirium, convulsions, migraine, a many other forms of cerebral attacks arise from loss of control of the higher centres over limited pa of the brain.

11. THE ACTION OF DRUGS.

In our attempts to classify symptoms according their affinity in nature—that is, according to processes whose disturbance resulted in the product of a symptom—we met with difficulties that seem insurmountable. For one thing, the agent wh reaction on the body produced the symptom co seldom be recognised; for another, when the pati became so ill that he had to consult the doctor phenomena were so numerous and varied that it difficult to detect their relation to an agent or to another. Recognising that symptoms were, a all, only a modification of normal processes, it possible by suitable means to modify these proce and produce phenomena identical with sympto Amongst these means was the giving of drugs. action of drugs is practically that of the action of toxins of disease, and it is often possible to imit disease states by drugs and similar agents as gl extracts, vaccines, &c. The advantage of this met is that we can observe the condition of the individ before the drug is administered both in health disease, and watch the way in which the drug pi out the tissue or organ on which it has a defi effect. Amongst those effects there may be one more which reveal the exact part or unit in the re arc on which it acts, and by analogy we can infer effect upon other organs where it is not possible learly to recognise the part it affects. In this vay a good deal of light can be thrown upon the ature of the symptoms of disease, as well as iving us a better understanding of the action of our emedies.

Although a good deal of work has been done on he action of drugs, the results have not been as uch used as their importance deserves, nor has the nportance of pharmacological experiment been fully rasped. We are greatly dependent on physiological xperiment for our knowledge of the functions of rgans, but there are great limitations to these methods, that there are whole fields which are beyond their rovince, such as the sensations and the afferent ervous system. It has already been pointed out hat the peculiar function of the afferent neurone lies the peripheral branches of the fibre, and experiments hich neglect this part, as in cutting and stimulation, ill fail to reveal the function of the neurone. By e use of drugs the nervous system remains intact, nd the manner of action of the drug and its effects semble more closely those of a disease agent than cutting experiment.

Though we are carrying on this line of investigation ur results are as yet too scanty to justify us in dealing ith them at any length. Here we give some results f our study of a few drugs merely to indicate the nes we pursue.

It may be considered that all drugs which produce e or more demonstrable effect produce at the same me a great many more effects which are unrecognised mply because we do not possess the means of detecting em. It is at times possible to recognise with fair rtainty the manner in which a drug acts on a articular organ, and it may be reasonable to infer at it acts on the same kind of tissue in other organs though the effect as seen by the observer may be fferent. Such clearly recognised effects are more fely detected when the dose is minimal, for the ason that in large doses not only may confusion ise from the number of effects, but the disturbed nction of one organ may modify the action of other gans, just as happens in certain forms of ill-health. he action of atropine, alcohol, digitalis, and chloro-rm afford good illustrations of the help we may get om comparing the production of symptoms with e effects produced by drugs.

Atropine.

The heart rate is dependent upon the sino-auricular de, as it discharges the impulses which stimulates e heart to beat. The cells of this node are peculiarly nsitive to agents which increase or decrease their citability. The chief agents are the influences the vagus and sympathetic nerves—the vagus creasing the excitability and the sympathetics creasing it. Such effects are spoken of as inhibition d stimulation, but when we inquire more closely to their nature we find that on the one hand the gus delays the metabolic process within the cells the S.-A. node, so that it takes a longer time for the lls to renew their store of energy, and become sus-ptible to stimulation, and on the other hand the mpathetic acts by hastening the metabolic process. ropine acts on the terminal branches of the vagus rve, not on the nerve cell, but on the part of the urone concerned in the special function of the nerve. a result the metabolic process in the cells of the A. node, to which reference has been made, is not layed by the vagal effort, and the heart's rate comes increased. Atropine acts on the terminal anches of that portion of the cranial nerve which pplies the pupil and ciliary muscles. The effect re is to prevent impulses reaching the constrictor the pupil and the ciliary muscle, so that these scles cease to act. While the atropine acts upon same part of the nerve in both cases the effect different. Suspension of vagal activity results in stening the metabolic process in the S.-A. node; spension of the activity of the third cranial nerve ults in the blocking of impulses to the muscles. ropine acts on the brain and produces delirium.

Alcohol.

It is not easy to explain satisfactorily all the phenomena due to the effect of alcohol, particularly as alcohol causes a dilatation of the blood-vessels and thus influences organs by an increased blood-supply. But certain manifestations can be recognised and referred with fair certainty to their cause. At a certain stage of intoxication certain muscular movements become impossible. These movements belong to a very definite group—namely, those which are acquired late in life, such as the movements involved in speech, in writing, in giving expression to the face, and in binocular vision. It is to be observed that the muscles in those cases are not paralysed, for however unsteady the hand may be it can still grasp the glass and raise it to the lips, and however difficult speech may be the same muscles when employed in swallowing are still shown to be active. It is manifest that here the impulses that should reach the muscles from the brain by the latest developed channels are blocked. This would suggest that in the later stages of alcoholism, whether resulting in a profound sleep or noisy delirium, processes of a similar kind are affected.

12. Increased Activity from the Blocking of Impulses.

The object of this analysis of the phenomena produced by atropine and alcohol is to disentangle the confused mass of symptoms which may be found in a sick man, under the influence of a drug or of the toxins, of a disease. The recognition of the nature of a single phenomenon may render it possible to find out the nature of others. In this attempt we must not be misled by the superficial character of the phenomena or symptoms, for they are but the expression or result of a disturbance, and are not themselves the cause of the disturbance. Though we may find an organ exhibiting signs of increased activity, we are not justified in concluding that the organ has been stimulated or that the agent causing the disturbance acts by stimulating the organ.

There are processes which are concerned in increasing and decreasing the activity of cells and they are normally in continuous action, the one restraining the activity of the other. If for any reason one of them ceases to act, the other is unrestrained, and there results an increase or decrease in activity of the organ. This balancing of activity is in action in regulating the heart rate and in regulating the size of the pupil. The actions of the vagus and sympathetic are antagonistic, because the function of the vagus is to increase the resistance to stimulation, while the sympathetic decreases it.

The removal of vagal influence over the heart allows the sympathetic to be unchecked, with the result that the heart's rate becomes greatly increased. Atropine acts in this way, so that if we did not know how it acted we would be inclined to say that atropine was a "cardiac stimulant." In the same way atropine blocks the impulses from the third cranial nerve, so that dilatation of the pupil results, and we say that atropine causes dilatation of the pupil, whereas, what it really does is to allow the dilator pupillæ to act unchecked. The delirium which results from atropine or alcohol is described by authorities as being due to these drugs "stimulating the brain." It is more likely that the condition is one in which a controlling or restraining influence is lost. This is specially likely to be the case when we reflect what a slight quantity of an agent may produce the effect. Thus, a few drops of atropine put into the eye may produce not only a dilatation of the pupil, but also delirium. It is a reasonable inference that the drug acted in the eye and in the brain on similar structures.

From this way of reasoning we would infer that delirium is the result of the blocking of impulses from the cells which regulate or control the centres which are concerned in thought and in executing movements. In describing the effects of alcohol it was pointed out that it also acted in blocking nerve impulses. This would suggest that in the later stages of alcoholism, whether resulting in a profound sleep or in noisy delirium, other neurones are affected in the same way. This seemingly conflicting effect, when a drug leads to an increased activity of one organ and a decreased activity of other organs, is not uncommon. The action of digitalis, for instance, undoubtedly leads in some cases to a decrease in the pulse-rate, while at the same time it may increase the susceptibility of the vomiting centre. It is commonly assumed that the main action of the drug is upon the heart, whereas it acts far more frequently upon the vomiting centre. In people with healthy hearts digitalis has little or no effect, but in most people it produces nausea and vomiting. It is chiefly in diseased hearts, as in auricular flutter and fibrillation, that its effect is predominantly cardiac, and that for a reason which does not concern us here.

Such a drug as digitalis has other effects than vomiting and decreasing the heart, but they are not always perceptible. Diarrhœa may result. Mental disturbances of a slight degree are not uncommon, though occasionally they are very striking. A young woman with mitral stenosis was curiously susceptible to digitalis, partial heart-block being readily produced. One day, while under the influence of the drug and engaged in her household duties, she suddenly lost all consciousness of her surroundings and found herself sitting sobbing and crying at the fireside of a sister a mile away from her home. How she came there she did not know. An hour previously she had walked in and sat down and would not reply to her sister's inquiries. Toxins of disease act in a similar way. A man while recovering from an influenza was occasionally seized with attacks of noisy delirium; during the attack the pulse was slow and irregular, due to partial heart-block—of the kind produced by digitalis. After a few weeks the attacks ceased and neither heart nor brain symptoms of any kind were afterwards manifested.

Not only delirium but temporary insanity occurs after an influenzal attack; some people readily become delirious with a slight febrile attack. Insanity from toxic causes, as during the puerperium, or during a *Bacillus coli* infection, is not uncommon. It is worth considering how far the disturbances that lead to delirium and insanity are related to the disturbances that produce the symptoms of disease in other organs.

13. THE ACTION OF CHLOROFORM.

The inquiry into the nature of symptoms and the phenomena of ill-health has shown that problems in medicine can be approached in different ways, each of which throws a new light upon the subject. In this way principles emerge whose application helps the solution of problems. Many years ago, in a discussion, the late James Ross threw out the suggestion that there was a tendency for disease to affect the latest developed structures. We dimly perceive that this idea may explain a goodly number of the phenomena of ill-health if we knew how to apply it. I have attempted to apply the conception to discover the action of drugs, and studied it particularly in the action of chloroform. When Ross propounded this idea over 35 years ago, I was devoting much time trying to find out the parts of the nervous system concerned in the production of pain. At that time the researches of Gaskell on the sympathetic system were beginning to be applied, particularly by Ross, to the interpretation of symptoms, and as a result of a great many observations I put forward the view that of the two great divisions of the nervous system—the cerebro-spinal and the sympathetic (now called by Langley the autonomic and including the sympathetic and para-sympathetic)—pain was an attribute of the cerebro-spinal system. In this view the cerebro-spinal system and the "sympathetic" were closely allied, so that when pain did arise from visceral stimulation it was by impulses conveyed by the afferent sympathetic nerve to the cerebro-spinal system, just as impulses from the viscera caused contraction of the voluntary muscles seen in the hardening of the muscles of the abdominal wall in visceral diseases, and in the "organic reflexes."

I went further and suggested that of the tw systems the sympathetic (controlling the "vegetative functions) was the older, and was the representativ of the nervous system in the invertebrates, while th cerebro-spinal was more recent and appeared first i the vertebrate animals. At this time embryologist and anatomists taught that the sympathetic wa an outgrowth from the cerebro-spinal system, an therefore the more recently developed. The sugges tion that the sympathetic system was the oldes was not accepted, but it is of interest to find tha this suggestion is now receiving some support fro embryologists.

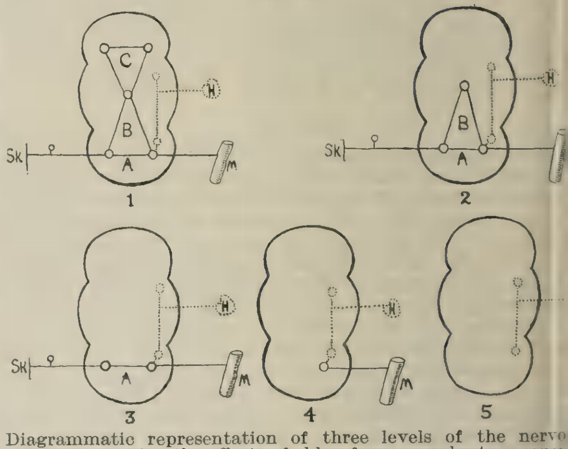
At that time I recognised that this was a matt which went to the root of symptomatology, and tha no clear conception of pain and associated phenomen (such as cutaneous hyperalgesia, muscle contractio nausea, and vomiting, &c.) could be obtained until th question was settled. I therefore sought for oth evidences in the effects of diseases and of drug The study of the effects of chloroform seemed t my mind to be if not conclusive at all events strongl confirmatory of the view that the autonomic syste is the more archaic.

The assumption is that the drug affects in order th nerve cells according to their development, the late developed being first affected. In this way the who cerebro-spinal system of nerves is put out of actio (paralysed). Organic reflexes are assumed to ari in the autonomic system, and to be expressed (in pa at least) through the cerebro-spinal, so far as th action of voluntary muscles are concerned, as i respiration, defæcation, micturition, &c.

In the diagram Fig. 9 an attempt to depict th effects of chloroform is given. The matter is repr sented in a broad fashion, for I am too ignorant the constitution of the nervous system to descri the details. This description is based upon we recognised facts and is an attempt to explain them.

Three levels of the cerebro-spinal system a represented in the diagram Fig. 9 (1). The low level (A) representing a simple reflex, the part represents the sensory system of the external bo wall, while M represents the voluntary muscul system in whole or in part. The second level represents the portion of the brain where movem are coördinated, the higher level (C) represents t portion of the brain concerned in consciousness. T dotted portion represents the autonomic system nerves concerned in the organic reflex of respirati and in regulating the heart.

FIG. 9.



Diagrammatic representation of three levels of the nervo system showing the effects of chloroform on voluntary musc Muscle contraction can result from three levels of the cereb spinal nervous system and from the autonomic nervo system, represented by the interrupted lines. Chlorofo acts by blocking impulses to the muscle first from the high level C., next from the mid-level B, and then from the low level—the cutaneous reflex at A. After these are thrown of action impulses from the autonomic system and t respiratory centre continue to excite the muscles, till fina with the blocking of impulses from this latter source respi tion ceases and the heart (H) gradually ceases to beat.

On the administration of chloroform the higher centre (C) is the first to be affected (Fig. 9 (2)). The patient is unconscious but capable of muscular movement, and is often delirious because the portion C becomes partially blotted out. A further stage of chloroform anæsthesia represents the middle level gone (Fig. 9 (3)), when the patient lies in a seemingly profound sleep, but reflex contraction of the muscle occurs when the conjunctiva is stimulated. Movements are also provoked if a knife cuts the skin. At this stage the voluntary muscles concerned in the respiratory movements are acting. The next stage shows the abolition of the cutaneous reflex, the stage at which operations can be undertaken (Fig. 9 (4)). The only movements of the voluntary muscles now are those of respiration. The contracted abdominal muscles, the result of visceral disease, if present, are still unrelaxed, and may remain so even when the anæsthesia is profound—that is to say, impulses reaching the abdominal muscles from the viscera are unaffected by the chloroform. The next stage is when the voluntary muscles cease to act and respiration stops, on account of the blocking of impulses to the motor nerves in some part of the respiratory reflex arc (Fig. 9 (5)). Following upon cessation of breathing the heart gradually ceases to beat and death results.

Such is briefly the course of events in the anæsthesia of a healthy individual. The occurrence of death under chloroform, when not due to a cessation of respiration, is due to the disturbance of certain processes in the heart itself, which renders them more susceptible to the drug. How dependent the heart is for its action on a suitable supply of (aerated) blood is shown by the following experience. While feeling the pulse of a patient being operated upon it was found to become slow, and on looking at the patient it was evident that although he was making the movements of respiration, no air was entering the lungs because the tongue had fallen back. Opportunity was taken to watch this effect when the pulse steadily fell from 60 beats per minute to under 20 beats per minute, when the patient had suddenly a slight epileptic attack. The fall in pulse-rate was due probably to vagus inhibition by asphyxia blood acting on vagus centre. When the tongue was pulled forward the patient breathed deeply and the heart's rate became at once increased to 70 beats per minute.

It is to be observed from the foregoing description of Fig. 9 that the inactivity of the voluntary muscles was due to the blocking of impulses, first from the centre of consciousness, then from the second level, then from the periphery, and finally from the centre of respiration. In Fig. 3 it was shown that a voluntary muscle could be made to contract by impulses from four different sources. It will be seen that chloroform in turn blocks these impulses or "paralyses" the nerves from these sources.

This description of chloroform effect is given mainly to indicate certain lines which can be pursued in different spheres of medical research, not only in elucidating the nature of symptoms and the action of remedies, but also in solving the problems of development.

DONATIONS AND BEQUESTS.—By the will of the late Mr. Frederick Wolfe, retired solicitor, the testator left £2000 to the Middlesex Hospital, as to one-half for the Endowment Fund and one-half for the Cancer Research Fund, and £1000 each to the Charing Cross Hospital for the Endowment Fund and to King Edward's Hospital Fund for the Endowment Fund, as well as £500 each to the Cancer Hospital, Fulham-road, and the National Hospital for the Paralysed and Epileptic. Several hospitals to which the testator had been an annual subscriber will receive £100 each, and subject to certain bequests the residue of the property will be divided between the Charing Cross Hospital and the Middlesex Hospital for the Endowment Fund, and the Cancer Research Fund respectively.—During the past month the Manchester Royal Infirmary received two legacies: £1000 from the late Rev. John Jones Dixon and £200 from the late James Reece. Amongst the donations and subscriptions were £1250 from the Manchester and Salford meat trades, and from other trades and societies sums totalling £585.

SOME ASPECTS OF THE
TYPHUS PROBLEM IN SOUTH AFRICA.

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TYPHUS is very prevalent in South Africa, mostly amongst natives, more than 8000 cases a year being notified. As full notification is impossible under primitive conditions, this number probably means 24,000 actual cases. About 300 cases a year occur in whites, but these are accidental infections from natives.

Difficulty of Diagnosis.

Typhus has probably occurred in South Africa since the earliest times. The natives are familiar with the disease and, as their habit is, pick out a salient feature for naming purposes. I-Fiva-Myama means literally the black-tongued fever, referring, of course, to the pronounced typhoid state which so readily develops. Only in the last few years has "black fever" been identified with typhus. Mitchell, Cranke, and Rees, the last of whom must be added to the long list of those who have lost their lives in typhus investigation, were the first to realise the identity of the two diseases. Only now is typhus coming into moderate prominence. The presence in a native district of a 14-day fever about which the local practitioner is unable to make up his mind is very suggestive of typhus. Such inability to make up the mind does not indicate a lack of diagnostic acuity; the raw native does not usually send for the European doctor, and if he does, one visit does not furnish all the clinical evidence necessary for an exact diagnosis. This is especially so as typhus in South African natives in no way conforms to the classical description of the malignant and terrifying type known to the older generation of European practitioners. Perhaps the most important difference is that the rash is not seen on the dark skins of the primitive native races. In speaking to Dr. Jacottet, of Matatiele, who was in Serbia during the epidemic, he told me that if it were not for the absence of the rash he would have readily diagnosed the 14-day fever prevalent in his district as typhus.

Mildness of South African Typhus.

Another difference is that the South African type is a comparatively mild one. Reliable statistics are impossible to obtain; my impressions are derived from the opportunities I have had in the past two years of observing innumerable cases both in hospital and in their own rural setting. For these opportunities I have to thank my chief, Dr. J. A. Mitchell, whose name I have already mentioned in connexion with pioneer work in the recognition of South African typhus. Certainly typical cases exist, especially amongst middle-aged people; these have sudden onset with pain in the neck and body, high temperature, rapidly developing fever, prostration, red eyes, stupid face, dry brown tongue, delirium, deafness, absence of knee-jerks, and death from the eighth to the twelfth day. In such cases blood-stained purple spots or even plaques may be visible in spite of the darkness of the skin. Small hæmorrhages may occur apart from the spots giving rise to a flea-bitten appearance. But associated with such cases are others of a much milder type dwindling down to a few days' pyrexia with a few added symptoms. I have not yet had the opportunity of confirming Jacquot's observation of "typhusisation" in subjects exposed to infection taking the form of malaise, slight fever, loss of appetite, headache, and intellectual debility for several weeks.

In white or light-skinned people the rash is prominent, varying from transient macules which fade on pressure, through brown-stained spots which do not so readily fade, to distinct blood-stained spots. The milder the case the less the rash. The shading of spots showing deep in the skin is spoken of as subcuticular mottling. A certain amount of bronchial catarrh is not uncommon, but the broncho-pneumonia which is such a marked feature of European typhus is only rarely seen.

Distribution of Population.

In South Africa one has to deal with large native areas on the one hand, and rural and urban mixed areas on the other. In urban areas the means exist for enforcing cleanliness and actively suppressing the disease; in mixed farming areas the natives are greatly under the influence of the whites as regards health, and in the large native areas such health influence is absent. Of these native areas the Transkei is typical; here a large portion of the Eastern Cape is divided into 27 districts, having a total population of over a million natives. In each district is a magistrate and a part-time district surgeon; round each magistracy springs up a little European village. In a district with a native population of 30,000 there may be 20 or more local areas, each under the control of a native headman; a headman's area (called a location) has a very scattered native population. A kraal, the habitation of one family, consists of several huts and a neighbouring rough enclosure for a few stock, sheep, or goats that the family is lucky enough to own. Kraals are often aggregated into scattered villages. Topographically, the country varies from undulating veld to rugged mountain areas. A few roads are supplemented by rough tracks which dwindle into paths; except on the roads wheeled transport is impossible. The natives use a very crude form of small sledge drawn by oxen, but many places are only accessible on horseback.

Such a native area soon becomes a nest of typhus and other diseases. Suppression of typhus in such an area presents the greatest difficulty.

Social Conditions of Natives.

The habits and social conditions of the natives are such as completely to nullify the advantages of living in sunshine and vast open spaces. In an isolated kraal consisting of five round mud huts, each without any ventilation or lighting except a small door, one may find at night 10 or 15 persons closely shut in, lying on the floor, each completely enveloped in a kaffir blanket. Native custom requires unlimited hospitality. Interchange of lice under such conditions is unavoidable. Nor would the presence of a typhus case or convalescent alter the customs of the house. A fundamental difficulty of dealing with typhus in natives is their ignorance of the infectiousness of disease. Witchcraft and malign influences they believe in, but disease germs and their transmission from one to another are to them inconceivable.

Knowing as we now do that typhus can be communicated from person to person by the louse alone, the suppression of typhus becomes a matter of enforcing cleanliness. Amelioration of a native's social conditions must necessarily be a long process; increased agricultural productivity may in time to come enable him to produce not only enough for his own bare existence, but a surplus which will give him prosperity and the luxury of cleanliness. It may not be literally true that the first act of the Pilgrim Fathers was to fall on their knees and the next to fall on the aborigines, but their advent marked the introduction of conditions most deadly to the aboriginal races. Tuberculosis takes terrible toll of uncivilised man brought into contact with those who have enjoyed the advantages of urban civilisation. The wearing of European clothes without opportunities for cleanliness tends to give the louse unlimited scope. The red ochre and fat with which the raw native anoints himself are inimical to lice, and the loose blanket which can be thrown off and laid in the sun is not an ideal home for them, having neither folds, seams, nor cosy corners. Generally speaking, however, all natives are lousy, in the head if not in the body. Old people are the worst; an old native woman long past sex interest is a neglected figure. The difficulties of personal cleanliness in rural natives are not realised. One set of dilapidated clothes worn continuously, the nearest washing water some miles away, the weather sometimes very cold, no soap and no money to buy any—these factors indicate some of the difficulties. The native now moves wider afield both for livelihood and amusement, with corresponding effect on the epidemiology of typhus and other infectious disease. One may say he is in process of Europeanisation and urbanisation, of which neither is an unmixed blessing.

To attain a standard of cleanliness which will eliminate typhus may be realised in the dim future. meanwhile, urgency measures are required. If you tell a native that the louse is the cause of typhus he laughs at you. He well knows that the louse has been the constant companion of himself and his ancestors; moreover, the statement would not be true, for the *infected* louse is responsible. The immediate problem, then, is to get rid, not of the louse, but of the infected louse. For this three things are necessary: First, to find the cases; the second, a portable rapid disinfestor; and the third, a reliable insecticide which will be attractive to natives. Scouts to find the cases are easily found and trained.

De-verminisation Apparatus.

To work out a portable, rapid, and efficient de-verminising apparatus has been more difficult. Water and fuel are often unobtainable. Any process which wets the clothes is too slow for practical purposes and raises intense objections. All schemes for general de-verminisation are too costly. Natives are only amenable when frightened by actual contact with the disease; like all savages, they lack foresight. The difficulty has been solved by the use of a canvas cover placed over a collapsible wood frame, into which hot air from a large blow-lamp is introduced through a short length of light iron pipe. The hot air is distributed and danger of fire is avoided by the use of a perforated galvanised iron baffle. The temperature is regulated by a Centigrade thermometer slipped into a wooden guide let into the top of the tent. The whole apparatus with the pack-saddle on which it is carried weighs about 116 lb. The tent is 4 ft. 7 in. high, 4 ft. 4 in. by 3 ft. 3 in. long and wide, and of stout canvas. The sides are prolonged into 4-inch flaps which rest on the ground and may be weighted with stones, earth, or other material. The frame is of wood, the uprights about 4 ft. 11 in. in height, being pointed for driving into the ground. The sidepieces, two long and two short, corresponding to the dimensions of the tent, are joined to the tops of the uprights by detachable three-way angle-pieces made out of 3-inch lengths of light but strong metal tubes acetylene-welded together. To prevent the tent catching fire over the hot-air pipe, an oblong piece of asbestos cloth, the lower edge of which touches the ground when the tent is in position, is inserted midway in one of the long sides. The pipe is of black iron acetylene-welded. The baffle consists of a perforated plate of light galvanised iron 2 ft. 4 in. wide and 3 ft. long; 6 in. of the length, bent at right angles, raises one end from the ground. The unbent edge rests over the inner end of the pipe but raised level by a couple of loose stones. The plate, including its bent end, is perforated by closely set holes 1 inch in diameter, except for a narrowing area 16 in. wide and 12 in. long, where the hottest part of the draught enters. The best blow-lamp is made by Christopher Collins, Ltd., St. Paul's-square, Birmingham. No. 100.

The gallon-sized "Corona" lamp made by Messrs. Howes and Burley is satisfactory; other lamps have proved disappointing. The six cross-pieces, on which to hang the clothing, are light but strong, preferably of bamboo; they are lashed with a continuous length of thin rope on the upper surface of the long sides of the frame. Stiff wire double-hooked loops are passed over the bamboo crossbars, four to each, for smaller garments. The best pack-saddle is the G.S. military pattern.

To work the disinfestor first set up the frame. Dig a channel for the pipe to enter under the asbestos insertion (to save the asbestos from the wear which takes place if the pipe is simply placed on the ground and the asbestos cut snugly to fit it). Clear enough earth from the inner end of the pipe to allow free access of air under the baffle. Dig a hole outside the tent deep enough to bring the flame of the blow-lamp opposite the pipe. Place the baffle-plate in even position as described. Clothing must hang over the bamboos or on the hooks *so as to leave a clear space between each row*, and no clothing must hang over the frame. If these points are not carefully attended to the heat distribution will be uneven, the disinfestation patchy, and the thermometer may not indicate the actual heat in places, so that there may be scorching. Clothing should, of course, hang well clear of the baffle.

Cover the loaded frame with the tent. Place the lighted blow-lamp in the pit so that the whole flame enters the pipe. Place the thermometer in position. Take the time when the thermometer registers 75° C. Twenty minutes of this temperature will kill lice and eggs. By working from 85° C.–90° C. the time can be shortened. When dealing with skins and leather 85° C. should be the maximum. It is useless to disinfest damp clothing, as the heat is all used up in drying. Watch the temperature and regulate by the cock on the blow-lamp. The burner of the lamp must be replaced by a more substantial one consisting of an iron ring with radially projecting internal pieces welded into position. The rings I am actually using are of 5/16th in. iron, 2 in. in diameter, with four projecting pieces of material somewhat thinner than the ring. The last requirement was a reliable insecticide which would be attractive to the natives. Nuttall, in *Parasitology*, Vol. X., No. 4, gives an exhaustive account of the action of most known insecticides, and I am familiar with his work. Previous to my own experiments paraffin had been relied on in an emulsion with soap. I found its insecticidal qualities disappointing; probably the pure paraffin one uses for burning is not so potent as crude kerosene. Not only was its action disappointing, but the natives did not like it.

To make a long story short, I found that a saturated solution of naphthalene in nut oil (about 1 in 8) was an efficient insecticide. Any oil will do, but the cheapest, as far as I know, is nut oil. This is now used to disinfest the head and body while the clothes are passing through the machine. Naphthalene oil is very attractive to the natives; strangely enough it has no objectionable smell, and it has a beneficial effect on scabies to which the natives are very prone. As far as my experience goes, naphthalene oil kills lice and nits on the hair of head and body. A gallon is sufficient for about 250 persons. The head acts as a sponge from which the body, specially the hairy parts, can be anointed when suitable opportunity arises.

The apparatus is a gradual evolution. Dr. J. A. Mitchell, the Secretary for Public Health; Dr. Park Ross, and myself of the Union Health Department, and Mr. Harries, of the magisterial staff have all participated in its development. Good experimental results have been obtained in Mr. Harries's district of 25,000 population, but reinfection readily takes place from surrounding districts. A campaign is now, however, being organised on a large scale, one apparatus in each district. To work the apparatus a white man is required with two native assistants. All are mounted, so the gang and apparatus are very mobile. Cases are found by the scouts in front, and the gang follows and rapidly de-verminises. Under old methods the natives concealed the disease. They had little incentive for reporting it, at the best a very unpleasant boiling and spoiling of their clothes, restriction of their movements, and no helpful treatment. The introduction of the rapid hot-air and naphthalene-oil method has changed all this. Far from concealing the disease, they now clamour for attention, and it is to be hoped that the scouts may be dispensed with in the near future.

As regards treatment, the native has a peculiar objection to drinking water when sick. If by advice this objection could be removed one would be going far towards mitigating the disease. The advice is always given, but I fear not always acted on.

ADDITIONAL NOTES ON THE IMMUNISING FUNCTION OF THE SUBEPITHELIAL LYMPHATIC GLANDS.

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IN a series of papers from 1911 to 1917,[1] I developed the thesis that the tonsils, Peyer's patches, solitary lymph glands, and the vermiform appendix should be grouped together as the subepithelial lymphatic glands: that they were continually ingesting the adjacent bacteria in the nasal and alimentary channels by a process to which I gave the name phagotaxis; and that in all probability by this mechanism these subepithelial lymphatic glands were constantly immunising the body against various infections. In a book published in 1919[2] the available evidence was collected. Circumstances have prevented the carrying out of further direct experimentation. A few observations additional to those recorded in 1919 are, however, perhaps worth making.

First Suggestion of an Immunising Function for the Tonsil.

In 1919 I was unaware that the production of immunity had been definitely suggested as a function of any of the subepithelial lymphatic glands before 1911. R. H. Good, of Chicago, I now find from a reference given by Barnes,[3] wrote an article[4] in 1909 on Early Immunisation, the Essential Function of the Tonsil. Good, however, though aware of the passage of inert particles through the epithelium, believed that bacteria themselves did not pass. He therefore assumed that bacteria growing in the crypts of the tonsils produced their toxins which passed into the lymphoid tissue of the tonsil and provoked an immunising response. When sufficient opsonins had been formed the phagocytes emigrated into the crypts and attacked the bacteria, and the resulting mass was large enough to be squeezed out of the crypts and got rid of during the movements of swallowing. The words "lymph" and "vaccines" in Good's paper do not appear to be employed with their usual present meaning. There can be no doubt now that the lymphocytes of all the subepithelial lymphatic glands, including the tonsil, are continually throughout life emigrating through the overlying epithelium, engulfing bacteria, and returning through the epithelium into the lymphoid tissue, which is constantly crowded with bacteria in health. The theory of immunisation by the tonsils is thus in a far stronger position than was believed by Good.

Alimentary Immunisation.

That immunity against bacillary dysentery and Malta fever can be obtained by the oral administration of cultures has been shown by Nicolle and Conseil[5]; and work previous to 1919 on similar immunisation against typhoid fever has been repeatedly confirmed of late years.[6] Dead or living bacteria administered by the mouth will be taken up in large numbers by the lymphoid tissue of the tonsils, Peyer's patches, solitary glands, and vermiform appendix by the process of phagotaxis. And the further proof that has accumulated since 1919 of the successful vaccination by oral administration in various diseases is in support of the immunising function of the subepithelial lymphatic glands.

Healthily-acquired Immunity.

The recent brilliant researches of Dudley[7] have now supplied proof that mere exposure to diphtheritic infection without in any way suffering from the disease leads to the acquirement of immunity against the virus as shown by the Schick test. The virus almost certainly reaches the "contact" through the nose (directly or via the conjunctiva and lacrymonasal duct) or through the mouth. It is known that various mechanisms facilitate the rapid passage of the micro-organisms towards the naso-pharyngeal and faucial tonsils; and that when there they are engulfed by lymphocytes and carried wholesale into the lymphoid tissue in these glands. The conclusion is irresistible that these organs are concerned in this production of healthily-acquired immunity.

Further Work Indicated.

It is very desirable that researches on the lines initiated by Dudley should be carried out, to observe whether the acquirement of a Schick-negative reaction by exposure to diphtheritic infection is affected by previous complete tonsillectomy, both naso-pharyngeal and faucial. It would also be invaluable to know whether the morbidity and mortality rates of previously Schick-positive reactors on exposure to diphtheritic infection is influenced by previous complete naso-pharyngeal and faucial tonsillectomies. Indeed, the whole question of the response of the child deprived of most of its circum-pharyngeal ring of lymphoid tissue to the exanthemata would be a most useful subject for study in fever hospitals. Experimental work to test the vaccination power of the rabbit's appendix is contemplated, and this may also throw light on the work of the subepithelial lymphatic glands.

Evidence of Disease of Tonsils and Appendix.

But while there is room for much further investigation, it is, nevertheless, claimed that sufficient evidence has accumulated to call for the provisional acceptance of the view that the subepithelial lymphatic glands are the natural immunising organs of the body. This view is not popular, some surgeons regarding it as a reflection upon their work in removing tonsils and appendices. To admit that an organ has a useful function, however, does not imply that it should never be removed when it is the site of disease. The very function of vaccinating against infections renders the tonsils and appendix unusually liable to fierce assaults. The admission of a useful function does, however, demand that an organ should not be excised without adequate cause. The old fallacy that the human appendix is a vestigial relic was surely overthrown in 1919 by a study of the comparative anatomy and embryology[2]; yet it still continues to be taught and acted upon. Recently I saw a distinguished surgeon operate upon a woman of 25 for a ruptured extra-uterine gestation. After dealing most skilfully with the trouble he proceeded to remove a normal appendix. There was no history of appendicular trouble, but the surgeon justified himself by saying that appendicitis was a common and dangerous disease and without an appendix appendicitis was impossible. An acceptance of the theory of the immunising action of the appendix would positively contra-indicate such procedure.

Clinical indications for appendicectomy should be critically studied. In our present state of knowledge it may be worth while sometimes to remove the appendix as a remotely possible source of infection in some chronic systemic disease, but the culpability of the appendix is not at present proven. Appendicectomy for such conditions as epilepsy should be condemned. The diagnosis of chronic appendicitis for vague right-sided abdominal pain certainly requires searching analysis. As Haggard wrote in a recent editorial, "Chronic appendicitis is so easy to say and means so little. . . . We have little reason for diagnosing chronic appendicitis in the absence of acute or subacute attacks."[8] The diagnosis of chronic appendicitis has been strongly attacked by Hamilton Whiteford.[9]

Indications for Removal.

Again, if the tonsils have a useful function it is necessary to scrutinise critically the evidence that they are diseased before we remove them. Tonsils are removed either because of local lesions or on account of trouble elsewhere. With regard to local lesions moderate enlargement in childhood is no sign of disease. Enlargement of the naso-pharyngeal tonsil, however, may obstruct nasal respiration with serious consequences, and when it does so it always demands treatment. That whitish matter containing bacteria and phagocytes can be squeezed from the crypts cannot be accepted as a valid criterion of morbidity. Carruthers [10] has pointed out that such fluid can be squeezed out of the tonsils of healthy sheep and suggests that such fluid should be called "physiological pus." Certain it is that every healthy tonsillar crypt contains both phagocytes and bacteria.

Enlargement of glands in the upper part of the neck have doubtless often received their infection via the faucial tonsils; yet Kaiser[11] in his Effects of Tonsillectomy on the General Health of Five Thousand Children, states that whilst before operation 43 per cent. either had enlarged cervical glands or a history of enlarged glands, one year after operation 42 per cent. suffered from enlarged glands in the neck; for though some of the original enlargements had subsided, an additional 22 per cent. of the children had enlargement of glands previously normal.

With regard to systemic infections it is not sufficient to know that the virus entered by way of the tonsils. Whether infection takes place or not depends in large measure on the virulence and number of the organisms, and if invasion is to take place it is probably less serious via the tonsils than any other way. We must have reason for thinking that the tonsil has become a chronic focus from which reinvasion of the body is frequently occurring. There is some presumptive evidence that the tonsils may at times assume this rôle. And in selected cases it has been justifiable to enucleate the tonsils as a speculative operation in such chronic diseases as rheumatic fever and arthritis deformans. But the after-histories must be investigated with scrupulous care, and routine tonsillectomy for such conditions cannot be universally recommended till the statistical evidence is conclusive. Sluder, who writes temperately on the subject, gives a list of some 70 conditions outside the tonsil, for which, rightly or wrongly, tonsillectomy has been practised,[12] and others may be added. For such varied complaints as chronic skin disease, asthma, nephritis, goitre, muscular rheumatism, iridocyclitis, and epithelioma of the larynx has the tonsil been punished. Yet (if we exclude the undoubtedly serious effects of nasal obstruction due to enlarged naso-pharyngeal tonsil) of what lesion remote from the tonsils can it be said that the beneficial effects of tonsillectomy have been soundly established on a scientific basis? In the case of rheumatic fever and its manifestations the balance of evidence appears to incline against tonsillectomy.

Pathological Evidence.

If the clinical evidence of disease in the subepithelial lymphatic glands is sometimes unsatisfactory, the pathological evidence is not always above suspicion. A constant encounter is going on throughout life between bacteria and the lymphoid tissue of these glands. In consequence, the presence of intracellular bacteria in the lymph nodes and in the epithelium as well as on the surface, the collection of vast numbers of lymphocytes, and ultimately some degree of fibrosis are merely the expressions of the normal physiological activity. The presence of bacteria in a germinal centre without breach of the overlying epithelium, though accepted by Proetz,[12] is *not* evidence of follicular tonsillitis. One must also be sceptical of a histological report of chronic *interstitial* tonsillitis or appendicitis as evidence of disease, for these glands are normally in a condition indistinguishable from chronic low-grade inflammation. Ulcers of the epithelium or the presence of polymorphonuclear leucocytes are, however, good microscopical evidence of disease.

It is, however, not my object here to discuss the whole subject of the indications for operations on the subepithelial lymphatic glands. I wish to urge the probability of an immunising function for the tonsils and appendix, and in view of such probability to press for closer examination of some of the indications for operation.

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FOUR CASES OF MASTOID DISEASE.

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THE following case was diagnosed as one of acute mastoiditis, causing a septic meningitis.

CASE 1.—Female, aged 59, admitted on March 28th, 1922, in a comatose condition.

History.—Her husband stated that for 30 years she had been deaf in her left ear. On March 23rd, 1922, she complained of pain in her left ear, and on the following day there was a small amount of blood-stained thin fluid. Hot fomentations were applied, and the pain disappeared, whilst the accompanying vomiting ceased. On the 27th she felt practically well again, but at 10 o'clock that night the pain began again in her ear and also in the occipital egion. On the afternoon of the 28th she became unconscious.

Condition on Admission.—There appeared to be some nduration over the left mastoid process and pus was found n the meatus. No tympanic membrane was to be seen; he right ear was normal, pupils reacted to light and were qual, discs showed presence of optic neuritis. Reflexes: Knee-jerks present on right, not on left, and there was right plantar extensor movement. She was markedly pastic on the right side, but her left side appeared normal. ler other systems appeared normal on examination. ulse, 120; temp., 102° F.; resp., 30.

Diagnosis.—Mastoid disease, ? meningitis, ? cerebral bscess.

Operation.—Left mastoid explored and much pus found n antrum, with soft unhealthy bone separating antrum rom middle cranial fossa. Lateral sinus normal, but lying vell forward, partially encroaching on mastoid antrum. Bone destruction went at least 1½ inches behind sinus. The niddle fossa dura was bulging and was not pulsating; here was also granulation tissue on it. Dura painted with ure carbolic acid and incised; temporo-sphenoidal lobe xplored, but no pus discovered. Dura was then closed nd repainted with pure carbolic, and wound was closed, rainage being left at the lower angle. By lumbar puncture urbid cerebro-spinal fluid under pressure was obtained. Bacteriological report of cerebro-spinal fluid stated, "An rganism resembling pneumococcus was seen in direct film, ut no growth on culture after 72 hours' incubation at 7° C." The swab taken from the pus from the antrum grew *treptococcus longus.* The patient died the same night, ever having regained consciousness. Before death she ad Cheyne-Stokes respiration, and repeatedly vomited a arkish-coloured fluid.

Post-mortem Examination.—Granulations on dura in eighbourhood of wound. Meningitis well-marked, especially ver vertex and Sylvian fissures of brain, with a greenish-oloured pus. Ventricles dilated. No other abnormality.

The next case was one of chronic mastoiditis and uberculous meningitis.

CASE 2.—Male, aged 16, admitted March 29th, 1922, for eningitis. No history obtainable either from patient or is parents.

Condition on Admission.—Pulse, 60; temp., 98° F.; resp., 20. here was ? some tenderness over left mastoid and signs discharge from left ear. Patient very irritable and xamination extremely difficult. As far as could be made it there was no other abnormality. Strongly positive ernig's sign, knee-jerks present, plantar reflexes flexor. n anæsthetic was given for purposes of examination; ine normal on analysis was then obtained, lumbar puncure gave a clear fluid under pressure, and on examination the ears a bulging drumhead was found with a very small rforation through which a little pus was oozing. A yringotomy was then performed and much pus was tained.

Diagnosis.—Acute mastoiditis associated with meningitis.

Operation.—The mastoid was opened and large quantities pus and granulation tissue were found everywhere. nus normal; no granulations on mid fossa or posterior ssa dura, although the former was bulging.

On March 30th the boy was much better and could speak tionally, although the latent period was long. The report the cerebro-spinal fluid was: "White cells, 183 per c.mm.; th polymorphs and lymphocytes present. Protein, 18 per cent. Sugar absent. Suggests tuberculous mening-s as opposed to septic."

The boy's history was also now available: 14 days before mission he had returned home suffering from headache d vomiting, went to bed, and remained there till admis-n. Everything eaten was vomited and he complained of violent abdominal pain. On the 23rd he became delirious and had been so more or less till admission. From this one would have diagnosed a meningitis rather than an acute mastoid. The cerebro-spinal fluid analysis bore this out and suggested it to be of tuberculous type.

On April 1st the patient was comatose and lumbar puncture gave clear fluid under pressure. Bacteriological examination of this showed that "on direct examination there was an excess of lymphocytes and some blood. No micro-organism was detected, and culture remained sterile." On the 3rd patient was more comatose, pupils now widely dilated; examination of fundus of his eye showed "choked disc" with ? tuberculous nodules on the choroid (especially nasal side). Lumbar puncture gave fluid with roughly the same analysis as before; also there was a low percentage chloride. He died at 11 P.M. with a pulse of 160, temp. 102°, resp. 40 just before death.

Post-mortem Examination.—No evidence of direct spread of sepsis to brain from mastoid antrum. Lateral sinus on the side of operation not thrombosed. Membranes over base of brain more opaque, a gelatinous substance filling the interpeduncular space. Ventricles dilated. Large caseating gland at bifurcation of trachea. Miliary tubercles seen over both lobes of left lung. Small tuberculous glands bulging in wall of pulmonary artery. Branches of pulmonary vessels of left upper lobe found to pass through caseating areas in the lung. Right lung on section showed no tuberculous foci. Bacteriological examination of fluid from interpeduncular fossa showed presence of a few tubercle bacilli.

The third case was one of cerebral abscess following on mastoiditis.

CASE 3.—Male, aged 45, admitted on March 31st, 1922, for pains in the head, otorrhœa, and drowsiness. Patient had had otorrhœa for years.

History of Present Disease.—March 21st he returned home from work complaining of pains in right side of head and right ear. On the 24th his ear bled, but did not ease his pain, as it had done on previous occasions. On the 28th his headache became much worse, and on the 30th he vomited several times.

Condition on Admission.—Patient very drowsy, but answered questions. Lay on his right side, occasionally trying to get up out of bed. Headache right-sided only. Ear: Absence of drum and ossicles; a foul discharge present; there was no mastoid tenderness. Neck rigid, pupils reacted to light and were equal; no abnormality of ocular movements, no cranial-nerve lesion demonstrable; flexor plantar reflexes, abdominal reflexes present, hands gripped equally. Other systems normal.

Diagnosis.—? Cerebral abscess.

Operation.—Right mastoid was opened and pus under pressure evacuated. Lateral sinus normal, but granulations on dura of middle fossa; dura also thickened. Incision made into dura and temporo-sphenoidal lobe explored, but no pus obtained. Mastoid drained.

On April 1st patient much better and more normal mentally; headache much better. Sugar in urine; lumbar puncture showed a cloudy fluid. On analysis polymorphs were in large excess. Protein was 0·18 per cent. No reduction of Fehling's solution. Patient died half hour after lumbar puncture.

Post-mortem Examination.—Lungs full of blood and break down readily. Atheroma of abdominal aorta. Liver mottled. Kidneys granular. Brain shows good cerebellar cone; an abscess in right temporo-sphenoidal lobe. Meningitis at base, with a thick adherent opaque membrane.

The fourth case was one of acute mastoiditis, septicæmia, infective endocarditis, and cerebral embolus.

CASE 4.—Male, aged 6, admitted on April 6th, 1922, for drowsiness.

Previous History.—Patient had always been weak; tonsils removed 15 months before for sepsis.

History of Present Disease.—Three weeks before (March 14th) patient complained of pains in head. Both ears (particularly left) a few hours later began to discharge a thick yellow pus. He gradually became much worse. On the 21st he had a 15 minutes' shivering attack and looked cold and blue. On the 28th he had another similar attack. On April 3rd his ears both stopped discharging, and patient did not like to be disturbed.

Condition on Admission.—Patient drowsy, could not be roused. Eyes reacted a light, pupils equal. Right fundus showed reddening of disc; marked photophobia in left eye. Reflexes normal. There appeared to be tenderness over the left mastoid. There was a bilateral perforation of his tympanic membranes. Profuse discharge from left meatus. Pulse, 120; temp., 104·6° F.; resp., 40.

Diagnosis.—? Cerebral abscess following acute mastoiditis.

Operation.—Left mastoid opened and much necrosis of bone found; pus present, middle fossa dura and lateral sinus exposed; both normal in appearance, the sinus being free from granulations and pulsating. Wound drained. Nine hours after operation patient developed a right-sided hemiplegia affecting face, arm, and leg. Abdominal reflexes absent; a right extensor plantar reflex; patient more comatose.

Second Operation.—Patient was therefore re-operated on at once, and the wound was explored. Dura not now pulsating or bulging. An incision was made into the dura, and an excess of cerebro-spinal fluid was immediately evacuated. Temporo-sphenoidal lobe thoroughly well explored with an aspirating syringe, but no pus obtained. The next day, the 6th, patient's temperature rose to 106° and his pulse was not palpable. He died on the morning of the 7th. Pulse, ?; temp., 106·2°; resp., 62.

Post-mortem Examination.—Lungs showed patches of broncho-pneumonia. Heart showed presence of early vegetations on the mitral valve. Some petechial hæmorrhage on pericardium and on heart surface. Heart muscle pale and flabby. Staining of aorta and hæmorrhages in most organs. Brain macroscopically normal. No cerebral abscess.

Remarks.

These four cases seem to be of interest in that they exemplify conditions accompanying middle-ear disease fortunately rarely encountered. Cases 1 and 3 demonstrate that chronic otitis media, although causing trivial symptoms, may be potentially the most dangerous to life. Case 3 also shows that in spite of thorough exploration a temporo-sphenoidal abscess may be entirely missed and suggests that lumbar puncture in such a condition may lead to fatal results. The association of tuberculous meningitis coincident with mastoid disease, though rare, may give rise to great difficulty in diagnosis and treatment. Septicæmia is well recognised as a complication of acute mastoiditis.

A CASE OF
ANAPHYLACTIC SHOCK DUE TO ALIMENTARY ABSORPTION.

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The classical picture of anaphylactic shock, as seen in the guinea-pig, is described by Besredka as follows:—

> "Scarcely is the test injection terminated than the animal begins to struggle; it scratches its muzzle as if wanting to remove a foreign body. Its struggles become more and more marked; it commences to turn round and round and then to turn somersaults, which become more and more frequent and violent. Then the convulsive attacks begin to take place at greater intervals, and the animal, having become weakened from the output of so much energy, lies on its side. The vesical and anal sphincters are relaxed; there is involuntary discharge of urine and fæces. The respiratory movements, dyspnœic at first, become slower and slower, and finally become paralysed."[1]

A case of anaphylaxis, resulting from the absorption of milk from the alimentary canal, which I met with recently, in practice, is here recorded owing to its unusual character.

A girl aged 5 years, who had always previously been healthy, became ill on March 5th, the mother having remarked that she passed some blood with the motions. She was not aware of the child having had an attack of diarrhœa. The patient had been somewhat feverish, but had not vomited. The diet consisted, as was usual in the family, of potatoes, eggs, milk, tea, and bread. I was called to see her on the 7th.

Condition on Examination.—I found no abdominal resistance. The tongue was dry and slightly coated. The temperature and respiration were normal and the pulse was 80. There was no disease of the heart or lungs. I restricted the diet to milk, and prescribed bismuth carbonate 10 gr. three times a day. This diet was strictly adhered to throughout.

Course of Case.—Three days after the adoption of this régime the child passed a round worm (*Ascaris lumbricoides*) and thereafter the mother noticed her getting worse. Two days later I received an urgent message to come and see the child as she was extremely ill. The mother stated that the child was constantly "fighting and scratching her nose, gasping and stretching herself and sighing," and that she was always "falling away" if she tried to sit or stand up. During the previous few days there had been diarrhœa with blood-stained motions. The patient complained of some abdominal pain. There was no vomiting, but nausea was evident. The tongue was dry and red, pulse 110, temperature normal. The pupils were dilated. These symptoms had reached their culmination on this day. The mother was anxious to have the child removed to hospital.

I persuaded her to keep the child at home and ordered the milk to be boiled before use. I ceased the administration of bismuth. A change came about very rapidly as a result of this alteration in treatment. On the following day, the 14th, the patient was able to rest quietly in bed. The gasping and sighing and restlessness had gone, but she still had blood-stained diarrhœa. On the 15th the improvement continued and the diarrhœa was less; on the 16th the tongue was only slightly furred, temperature normal, there was no abdominal pain or nasal irritation, and she was out of bed; diarrhœa had ceased.

A scarification test with raw milk on the arm gave a reaction in half an hour. On the evening of the 16th the child was again given a drink of uncooked milk, and again complained of the irritation in her nose. After two weeks' avoidance of fresh milk she was once more able to take it without untoward effect.

Remarks.

The results obtained by boiling the milk are not suc as one would expect to find if the symptoms were du to protein sensitisation from milk, for Besredka state that the sensibiligen of milk is thermostable and wil withstand a temperature of 100° or 120° C. and i thereby perceptibly diminished in its toxicity.[2] Thi case is of interest as illustrating the fact first state by Richet at the International Medical Congress (1913 that "experimental alimentary anaphylaxis is difficult to bring about under conditions of healthy digestion, since it is a question of toxalbumins or nutritiv albumins, either because the digestive juices activel intervene in transforming these albumins and renderin them innocuous, or because the individual is immunise against them." Now in this family of a mother an five children, varying in age from 1 to 7 years, th substances going to make up the diet were the sam for all; the same milk was partaken of without an of the others manifesting gastric disturbance. But i the child whose case has been described a lesion havin been caused in the intestinal mucous membrane by worm, an area was left which was highly susceptibl to the absorption of foreign protein, such as would b conveyed by milk.

Intolerance of a milk diet is not unusual,[3] but train of symptoms so closely approximating to thos of anaphylactic shock, and passing off after the lesio in the bowel wall has had time to heal, is, I believ rare. One other possibility must be considered—viz that the bowels in the presence of a disturbance wer unable to carry the digestion of the milk to a suitab stage for its proper assimilation. The presence of a unusually permeable patch of bowel left the way ope for the absorption of toxic products whose digestio was completed in the tissues.[4] Such a contingency not so remote when one considers how frequentl persons become supersensitive to certain proteins aft intestinal operations. This hypersensitiveness ma pass off in months or in years according as th individual realises his inability to assimilate the foo in the same amounts as formerly.

It is worthy of note that the child has, since Marc been quite healthy and free from any complaint, an has never since passed any worms, although treate with santonin. Practically all the children of th district (Wicklow) are infected with worms, but I ha found none of them manifesting such a distincti group of symptoms as this one.

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Medical Societies.

MEDICAL SOCIETY OF LONDON.

CONSTIPATION FROM THE GENERAL PRACTITIONER'S POINT OF VIEW.

A MEETING of this Society was held at 11, Chandos-treet, Cavendish-square, W., on Nov. 12th, Dr. HERBERT SPENCER in the chair.

Dr. H. DES VŒUX introduced a discussion on this subject. He spoke of the unhappy experience, no doubt common to all medical men, of being consulted by an old friend, who thought he wanted a pill, as his bowels were not acting easily and his appetite had gone off a little—a patient whose general aspect was good, in whom an ordinary examination showed nothing until a finger introduced into the rectum discovered a large and irremovable mass. He conrasted this experience with the almost pleasurable eeling produced when another friend came to say hat he felt "very ill and all to pieces" and looked it, but on examination showed nothing but a loaded rectum, and perhaps a loaded colon, showing him to be merely suffering from the secondary effects of constipation amenable to a course of some laxative. This complacent exaltation was, however, unjustified, or no healthy friend of a practitioner ought to have been allowed to get into such a condition, at any rate f he had ever consulted the practitioner previously. This class of case, and others similar, were due to aulty medical teaching and would not be encountered so frequently had the consequences of bad habits been drilled into the minds of medical men when they were young. The profession should lay it down as a canon of sound and healthful existence that the bowels could and would act daily and naturally—that is, without medicament or extraneous help. There was too much of the attitude of mind of the physician who said when puzzled at a diagnosis, "Well, thank God we have the bowels to treat." When he was young it was taught that a daily evacuation was essential, and the unnatural corollary was that purgatives and laxatives were freely and thoughtlessly administered; this doctrine apparently still remained, hough perhaps it had been slightly modified. It certainly existed still in the nursery, where tender nfants were constantly dosed for any slight ailment; all were familiar with the parent who announced at he doctor's first visit, "Of course, I have given a dose of so-and-so." He often wished that the whole of his class of medicine could be scheduled amongst the dangerous drugs, for he felt convinced that in the long un more harm was produced by them than by morphia, cocaine, and the like. In practice about half the doctor's work was connected with the tomach and bowels; individual members of the proession had little power to prevent the occurrence of diseases of the heart and lungs, but they had ample means of preventing those of the stomach and bowels f they did but exercise them. The rectum and the bladder had much the same functions to perform under similar physiological management, but over he former came the interference of the conscious mind, while the latter was governed almost unconciously. The reflex action of the bladder, however, ould only be restrained for a short time, whereas he rectum could be controlled to suit convenience. The result was that the number of bladder trouble ases to be dealt with was infinitesimal compared with hat of troubles of the bowel. A healthy bowel meant a healthy body; the druggist's shop provided sop to Cerberus, which once thrown must be repeated at intervals.

Beginnings of Constipation in Infants.

In most infants the bowels began to act naturally, but once dosing had begun it was a labour of Sisyphus o stop it, for at sign of any bad temper, fit of crying, r slight ailment, down would go another dose. The evil of constipation thus began early in life; it was not until the age of 3 or 4 or even later that the fully developed symptoms of the disease attracted attention. The child was brought to the doctor because it was a bad feeder and sleeper, cranky and ill-tempered, thin, and anæmic; tonics of all sorts have been tried, digestive mixtures galore, and above all, plenty of nourishing food. This last item covered a great part of the trouble; such a case was easily and successfully treated by allowing three meals a day instead of the customary five or six (with extras). Some agreement as to what was meant by constipation was necessary; the simplest definition of the condition was "the retention in any part of the bowel of the unused or unusable food that has been ingested." Animals living a healthy life (which lap dogs did not) passed their excrement at such times and in such places as suited their convenience; in the human being the bringing of the defæcating reflex under the control of the conscious mind and not the upright position, as some would have them believe, first induced the constipated habit. He had learned by bitter experience that little or no useful information could be gained from the answers to questions concerning appetite, the amount eaten, and the action of the bowels; patients always lied about the amount they ate and were quite ignorant as to whether they passed a sufficient motion or not. A daily motion might be large or small, dry or soft; and the amount of it would depend on the bulk of food taken. It was absurd to be satisfied with the answer that there was a daily action. In the majority of cases, at all ages, the amount passed was probably not the totality of the content of the big bowel; there was probably always a residuum. In a normal bowel the sensation of fæces in the rectum was uncomfortable and led to evacuation, but the civilised bowel had been educated to neglect this feeling. If a patient could not diagnose his own constipation it became the doctor's duty to neglect the patient's opinion on the subject and decide for himself. Until the diagnosis of constipation was taught the disease would continue unabated. For some years, with a certain amount of success, he had been trying to diagnose the condition without X ray examination. If fæcal lumps were felt in the rectum or colon the patient was constipated; this diagnosis was often possible and not difficult provided the abdominal wall could be relaxed. He thought that a further step might be taken; if the colon, in part or in whole, was constantly distended the diagnosis was justified. Beyond these two signs he had not discovered any of use, apart from that series described by Sir Arbuthnot Lane.

Was there any connexion between constipation and the common and increasing conditions of adenoids, enlarged tonsils, and decay of the teeth? Would these common conditions become less frequent if constipation was prevented? He believed them to be close allies. Again, was proptosis ever congenital? It could be traced to very early life, and was due to overloading. If a child ate largely and from appetite all that was placed before it, it did not suffer permanently or even temporarily so long as the appetite was not unduly excited by a rich and tempting diet, and so long as the bowel emptied itself properly.

Dangers of "Feeding Up."

If food was taken by the dictates of Nature the latter would find means of disposing of it rightly; the only physical sign found was a slight distension of the stomach and some flatulence in the bowel. Far different was the result produced by the "feeding-up" process, where a child eating sparingly as Nature dictated caused alarm to anxious parents; then came the treatment considered necessary, and the more the child complained the more nourishment was given, together with a ferruginous or other tonic. Under the strain the intestinal organs became and remained bent, the abdominal fat was absorbed, and the whole contents of the abdomen progressed downwards towards the pelvis, although partially restrained in their course by artificial struts and ties and this terrible illness was established. The cause of all these later abdominal troubles was to be found in the baneful expressions "nourishing food," "digestible food," and "feeding up." Nature, without prompting, dictated in all healthy individuals the amount of nourishment required. The suckling child took the amount it wished; after the suckling period was past, we were told that "all food must be nourishing and digestible." Nature pointed out when the time came for a change of diet; why should we direct the contrary? All food ought to contain a considerable proportion of indigestible substances, for this part of the ingesta passed through from one end to the other and acted as a gentle stimulus. The contents of the colon ought to be indigestible and ought to be bulky, and they could not appear there unless they had been swallowed. But as much as possible of those things that are considered indigestible were rigidly and purposely excluded from the diet of young children, whereas the skins of fruits and vegetables—e.g., of apples and potatoes—the stalks of vegetables—e.g., cabbage—and the skins of animals ought in every case to be included. Young children were not allowed to eat hard food for fear of damage to their teeth, with the result that a child with strong undiseased teeth was rare. Further, as a result of want of use of the muscles of the mouth and jaw, the mouth and throat did not develop as they should, the throat became blocked with growth and nasal breathing was impeded. These children were constantly dosed; they became liable to feverish attacks, and for each attack they were dosed again. This was wrong, as was also the feeding of feverish patients —e.g., those with measles and pneumonia. No fevered patients required more than a minimum of food; even when it was forced on them they probably assimilated little of it. These attacks were ushered in with loss of appetite and with thirst; the patient's one demand was for drink—even inveterate smokers lost all taste for tobacco. As much drink as was demanded should be allowed. He knew of no greater comfort to a pneumonia patient than to restrict all nourishment to water, and had for many years followed this practice, of which one of the most gratifying results was that no laxatives were required. The tongue did not dry up, it cleaned rapidly, and the appetite returned with the disappearance of fever. A simple enema might be required to wash out the lower bowel, and need never be refused, for it gave great relief by encouraging the passage of flatulence, and no fear need be entertained of a habit being produced.

Diet for Adults.

In course of time the incidence of constipation and its consequences would tend to diminish; but this result can only come with the growing up of the present generation, and the doctor was left face to face with the problem of the adult population, with two alternatives—diet, and medical treatment by enemas or drugs assisted by massage and physical exercises. The best method was by diet; he believed that people could eat as much as they wished provided that the food passed through quickly enough, and that all residuum was cleared daily. Among suggestions for prevention of constipation, mention of the mind must not be omitted. One hundred years ago Dr. Reece recommended "bringing the mind to bear on the intestinal canal, peristaltic motion being easily retarded or increased by this medium." The body should be exercised daily; all systems of exercises had in common the drawback of taking up too much time, and the great majority of those who began them gave them up after a few weeks or months. To overcome this difficulty he had modified a few exercises taught him at school by the old drill sergeant. (The exercises were shown on the screen.) The advantages claimed for these exercises were that (1) they occupied a very short time (1½ to 3 minutes); (2) they were suitable for young and old; (3) they worked every joint in the body; (4) they called especially for frequent and deep respiration; and (5) the heart had to put out its best to carry them through.

Discussion.

Dr. **Walter Broadbent** said he agreed with practically everything Dr. Des Vœux had put forward. He thought skipping might take the place of the exercises shown on the film. Peristalsis in the colon differed from peristalsis in the small intestine in that it occurred in mass form, and only four or five times a day, being occasioned by the ingestion of meals and by defæcation. Gastric and duodenal ulcers, among other factors, delayed food and prevented dilatation of the ileo-cæcal valve, thereby causing stasis. Undue motility of the ascending colon also caused stasis. He did not believe in the part said to be played by kinks; many people had kinks who had not constipation; 75 per cent. of constipation was due to loss of sensitiveness and distension of the upper rectum as a result of neglect or inhibition of the impulse to defæcate. Constipation often arose in infancy as a result of carelessness on the part of mother or nurse. Babies should be encouraged to defæcate every day, soon after a feed. When older they should not be allowed to go out to play after breakfast until they had had an action of the bowels. A few years ago a difference was to be noted between the sexes with regard to constipation; the latter was found more frequently among females. The more hygienic modern corset, the better provision of water-closets in girls' schools, and probably increased athleticism among girls, had benefited the latter. X ray examination was valuable for accurate treatment, but was expensive. The early morning cup of tea and a glass of hot water at night were useful, together with fruit at beginning of breakfast and at other times during the day, figs and rhubarb being the best. Stasis frequently began at the sigmoid, and treatment should be started at that end. The best form of treatment was with glycerine suppositories, or with enemata given for three days running after breakfast. If these failed, recourse must be had to drugs, among which he rated salts low.

Dr. D. M. **Barcroft** said that constipation was not a disease but a symptom, and a symptom not of any great value from a diagnostic standpoint, as it figured in the picture of the great majority of described diseases. The fact that a patient confined to bed was unable satisfactorily to evacuate the bowels with a bed-pan showed that posture was a factor in proper defæcation; posture might, therefore, be equally a factor in the prevention of mild constipation. As Prof. John Chiene, of Edinburgh, used frequently to point out, the most satisfactory posture was with the thighs acutely flexed. Defæcation was a combination of voluntary and involuntary mechanism, and was also the terminal fact in a series of involuntary muscular efforts and in the elaborate chemical process of digestion. The process of evacuation of waste material, like the process of the taking of meals, should be regular; but it was impossible to speak dogmatically as regards intervals of time. The patient should try to establish a habit that the evacuation should be at approximately the same time every day. Passing on to treatment, the multitude of quack medicines made it unusual for a doctor to be consulted about constipation unless the latter were severe. It was possible to form an idea of the wide variations of the normal conditions of the bowels. In constipation there was often a big element of muscular overstretching and fatigue, in view of which the forcing of muscular contraction with cathartics and the employment of large enemata were equally harmful.

Dr. W. W. **Stocker** agreed that constipation was a symptom, not a disease. In abnormal cases evacuation of the bowels might be retarded for months. Auto-intoxication, diagnosed by the patients themselves led them to take purgatives, with the result that a vicious circle was set up. Real fæcal sapræmia sometimes occurred, or fæcal tumours which had to be carefully distinguished from malignant growths. In young women the swollen colon pressing on the uterus might cause intense pain. Sedentary habits and laziness gave rise to constipation; the modern lavatory at was too high and anatomically incorrect, giving se to a mechanical difficulty. Prevention was all-nportant in treatment. Aperients should not be sed; a normal saline draught, one quart in the orning, would act as a high enema and clear the nall intestine first. Lubrication was necessary and rganotherapy useful.

Dr. E. P. **FURBER** described the commencement of nstipation in infancy, when the child was frequently olded with regard to defæcation and otherwise taught regard the act as unpleasant. Other causes were ulty diet, pathological conditions such as a grumbling ppendix, visceroptosis, a painful anus resulting in ar of the act, and damage to the pelvic floor. He owed an American colon douche, known as Till's scade, which he had found useful.

Dr. P. B. **SPURGIN** defined constipation as not only packing together of the intestinal contents, but as n inability to evacuate a quantity of fæcal debris orresponding to the amount of solid food taken—a abit due to various causes. Children developed this abit through being encouraged by mother or nurse to ut the act off; some children were also very obstinate, nd lack of perseverance on the mother's part led to e habit. He also referred to the misuse of aperients nd to the harm done by the weakness resulting from ver-exercise of a child's muscles. Irregularity of the our of defæcation was natural in a very young child, ut in an older child should be discouraged. He eplored the habit of many adults of dosing themselves ith aspirin to remove the headache that accompanied nstipation.

Dr. H. **MORELAND McCREA** believed that the causes f constipation varied in the differing decades of life. n the first decade of childhood, after the period of fancy, laziness was the main cause, and the sexes ere equally affected. In the second decade it grew ommoner in females, chiefly because of shyness and f the still existing insufficiency of lavatories in girls' chools. In the third decade women still led, as pelvic isorder began to tell. In the fourth decade males ere beginning to lose their advantage; the commonest ause of constipation in women at this age was the ss of muscle power in multiparæ. From the ages of 0 to 50 the sexes were again about equal. Hypo-hyroidism of the menopause now became a factor. s regards treatment, diet was important; it was hard o make the mother understand what harm was done y milk in the causing of constipation. The time ould finally come for the use of drugs; and drugs urrying through the small intestine did not benefit he patient. The obstruction should be found with rays; if it was higher than the cæcum no purgatives hould be given. He found cascara the most useful rug.

Dr. **SPENCER** closed the discussion and Dr. **DES ŒUX** briefly replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

A MEETING of this section was held in the Royal ollege of Physicians of Ireland on Nov. 2nd, Dr. OSEPH T. WIGHAM, the President, being in the hair.

Dr. W. D. **O'KELLY** demonstrated

A New Method of Making Museum Jars.

e pointed out that in connexion with glass jars here were certain difficulties. It was hard to get hem the size to fit all specimens, and it was also ard to store them, as being made of glass they were rittle and very easily broken. He now made his wn jars of celluloid. By doing this he was able to et the jars any size he required.—The **PRESIDENT** aid that the method was one by which it was possible o economise weight, fluid, and expense, and also the rs really showed off the specimens they contained o better advantage than did glass jars.

Dr. A. R. **PARSONS** described a case of early Hanot's disease, with specimens prepared by Dr. A. C. O'Sullivan.

Dr. **GEOFFREY HARVEY** and the **PRESIDENT** followed with a case of splenic atrophy with thrombosis of the splenic artery.

Dr. H. C. C. **DEANE** contributed

An Unusual Case of Tubal Pregnancy.

The patient was admitted to the Royal City of Dublin Hospital on August 11th, 1923, complaining of abdominal pain. She was 38 years of age, married ten years, had three childred aged 8, 6, and 3 years, all alive and healthy. She had had no abortions, miscarriages, or premature births. Since the birth of her last child her periods had never been regular. Sometimes complete amenorrhœa occurred for three or four months at a time. She complained of constipation, otherwise she was in good health. The first attack of abdominal pain occurred about ten days before admission to hospital. The pain came on suddenly, and was confined to the lower abdomen, being more marked on the left side. The pain passed off gradually, and in two days' time she was up and about apparently as well as ever. A week later she had another attack which was similar to the previous one, but was more severe and accompanied by dry retching. The following day the patient was admitted to hospital. On examination she looked well, pulse and temperature normal. There was tenderness but no rigidity over lower abdomen. Otherwise examination was negative. There was a history of three months' amenorrhœa. Three hours after admission she got a severe attack of abdominal pain accompanied by dry retching. On being examined again the patient was pale, temperature subnormal, and pulse rapid and almost imperceptible. The lower abdomen was tender and rigid. There was no dullness or distension and no abdominal respiration. Rectal examination revealed a boggy mass filling up the pouch of Douglas. There was no blood in the vagina.

She was operated on at once. As soon as the peritoneum was divided an abundant escape of blood and clot occurred. The lower part of the abdominal cavity and the pelvis was filled with blood and clot. The Fallopian tube on the left side was identified. A loop of intestine was adherent to the tube and broad ligament. The intestine was freed, and a tumour about the size of a walnut was revealed midway between the uterus and the infundibulum. This tumour presented on its upper surface an opening with ragged edges from which blood was oozing. The tube was removed and the abdomen closed. A few days after the operation a uterine cast was expelled. Both this cast and the tube were sent to Dr. E. C. Smith for examination. She was discharged from hospital 25 days later, and is still alive and well.

In describing the tumour, Dr. **SMITH** said that on naked-eye examination it was found to be composed of dark-coloured friable tissue, very like blood-clot. It was covered in part by a shiny smooth membrane. Numerous blocks were taken and paraffin sections made. In most of these chorionic villi were present, they were very irregular in size, some looking like those seen in a hydatid mole. The arrangement of the covering cells was rather atypical. Islands and strands of syncytium were abundant, and also irregular groups of Langhans's cells. In some of the sections the tube wall was seen to be infiltrated by the fœtal cells, small syncytial masses were lying between the muscle fibres of the wall. He was doubtful as to whether the condition should be regarded as a simple tubal pregnancy or one tending to become a chorion epithelioma. Another point which he thought was of interest was the formation of well-marked decidual cells around the vessels as could be seen in the sections. The uterine cast was found to be composed of poorly formed decidua, as is usual in cases of extra-uterine gestation. It was degenerated and hæmorrhagic in parts.

In the discussion which followed Dr. T. T. **O'FARRELL** remarked that this condition was sometimes believed to follow gonorrhœa.—Dr. R. J. **ROWLETTE** said that as it was three months since the operation, and as the patient was now quite well, malignancy of the tumour was out of the question.

Dr. T. O. **GRAHAM** described a case of

Intrathoracic Sarcoma.

The patient, male, a labourer by trade, aged 39, came to the Eye and Ear Hospital complaining of difficulty in swallowing and breathing. He was somewhat hoarse, and had a very bad cough. At first it was thought he might be suffering from aneurysm of the aorta. He was slightly cyanosed, the veins were distended, and he was very short of breath. On percussion an area of dullness was found over about two-thirds of the chest. He was transferred to the Royal City of Dublin Hospital, and was recommended to the Coombe Hospital for treatment by the Erlangen method. The night before he was to go for treatment, however, his condition became serious, and after intense dyspnœa, lasting about seven minutes, he died.

Dr. A. C. O'SULLIVAN in describing the specimen said that the tumour was rather soft, and very hæmorrhagic. The growth extended into the glands on the right side of the neck, and it also descended as far as the pericardium. The heart, lungs, and the lower portion of the pericardium were completely free. There had not been infection of the abdominal glands, but the glands behind the stomach and the pancreas were affected. The spleen was rather enlarged, but not infected at all. The cells were very regular and small, just a little larger than lymphoid cells, but not the large cells which were generally seen in lympho-sarcoma.—The PRESIDENT asked whether the difficulty in breathing in this case was due to the size of the tumour, or was caused by nerve involvement.—Dr PARSONS said that in most cases of internal sarcoma he thought that difficulty of swallowing was not a symptom. When the patient came into hospital he said that he had had these symptoms for two months. There were large glands in the axilla, but no pleural effusion whatsoever.

Reviews and Notices of Books.

BÉCHAMP OR PASTEUR?

By E. DOUGLAS HUME. Founded upon MS. by MONTAGU R. LEVERSON. London: Simpkin, Marshall, Hamilton, Kent and Co.; Chicago: Covici-McGee. 1923. Pp. 296. 6*s*.

Pierre Jacques Antoine Béchamp was born in Lorraine in 1816. He was educated as a pharmacist, was professor successively at Strasbourg, Montpellier, and Lille, and died in Paris in 1908. Most of his long and vigorous life was occupied with the establishment of his doctrine of microzymas. It is not altogether easy to make out what this was from the present account, which is put together by the author of "The Multiplicities of Una" from materials accumulated by an enthusiastic admirer of Béchamp. But it seems that microzymas are intracellular molecular granulations which are, like Altmann's granules and the micellæ of some recent French authors, the fundamental units of living matter. They produce ferments, are responsible for the functional activities of tissues, and are physiologically indestructible. They may develop into bacteria, which are the result and not the cause of disease, either inside or outside the body; thus the putrefaction of a corpse is due to the microzymas which built it up changing their form and function after death; and the bacilli in the blood in anthrax are developmental forms of elements of the animal's own tissues. Shortly, then, Béchamp's point was that germs were not pre-existent independent organisms; Pasteur said they were: both objected to spontaneous generation.

There is probably much that is of interest in the abundant writings of Béchamp; a list is given at the end of the book. And if anyone wants to judge how far he anticipated Pasteur in some of his views, and which of them barked up the right tree when they found themselves in the same wood, he must go to these originals. In the Hume-Leverson summary Béchamp is the injured and saintly hero, Pasteur the successful villain; it is a version no one can wholly believe. Pasteur no doubt had an eye on his career, and he was apt to be rather short with people who differed from him; Béchamp surely made some mistakes, perhaps a good many. But they both did their best in the pursuit of natural knowledge; they are on the same side in that at any rate.

CANCER.

The Increasing Plague of the Century. An address delivered in the first instance to Sisters and Nurses of the London Homœopathic Hospital; later revised and amplified by GEORGE BURFORD, M.B., C.M., Senior Consulting Physician to the London Homœopathic Hospital. London: John Bale, Sons and Danielsson. 1923. 3*s*. 6*d*.

THE fact that the nursing profession stands as an intermediary between the doctors and the public has prompted Dr. Burford to address sisters and nurses in rather exalted prose and occasional verse on the subject of cancer, which he prefers to call malignancy. His views as to the prevalence, criteria, spread, and therapeutics of malignant growths are in the main orthodox, the differences from accepted opinion being chiefly his claim that emotional stress is a factor predisposing to malignant neoplasms and his emphasis on the connexion between an accidental injury and subsequent development of cancer. There is, indeed, little room for coincidence in Dr. Burford's philosophy. For example, under the heading of the Scope and Warrant of Surgery in Cancer, he states that where removal is impracticable, exploratory invasion into the abdomen alone is on occasion followed by spontaneous complete absorption of the neoplasm. For the rest, the matter in Dr. Burford's address is better than its presentation. Throughout he prefers the abstract to the concrete, the involved sentence to the simple case, the long to the short word. This is not a mere lapse of taste but a serious drawback to a book designed to promote and maintain a sane outlook on malignant disease. Nurses as a class are apt to think and speak in italics, and an attempt to educate them to help their afflicted patients to understand and others to avert malignant disease should emphasise mainly the duty of avoiding panic while seeking advice. The point that pain is not an early symptom of cancer is one of those which are not sufficiently brought out by Dr. Burford, and indeed, on comparing his expanded lecture with the recently published pamphlet of the Ministry of Health, there is but little doubt which would be more acceptable and informative to the average nurse.

A MIND THAT FOUND ITSELF.

By CLIFFORD WHITTINGHAM BEERS. London: William Heinemann. 1923. Pp. 411. 7*s*. 6*d*.

THE present edition of this work appears to differ in no respect from that reviewed in these columns about a year ago, except in the fact that it has found a London publisher. Since its original publication in 1907 the narrative has, of course, undergone much revision, chiefly in the direction of excluding mere propaganda, much of which, thanks to changes due largely to the author's own influence, is now irrelevant. In fact, the original purpose of the book has been achieved in America, and it has taken its place rather as a classic in the literature of psychiatry. No other such account as this of an attack of insanity has ever been written; the combination of exact memory, literary ability, and quite unusual powers of introspection and self-analysis must be sufficiently rare in potential authors of this kind to render it quite improbable that this example will be equalled in the future. Perhaps its most remarkable chapter is that which describes the early hallucinations of the author's malady, and the features in his environment on the misinterpretation of which a system of delusions was built. This process is traced in considerable detail and illustrates vividly the ease with which a small error in management, such as a careless word from the physician or attendant, may give rise to a new delusion.

It is perhaps not true to say that the book's purpose fulfilled. Its chief lesson is the dependence of the atient on the sympathy of the nurse—the sympathy nd consideration which certainly appear to have een lacking in the attendants who had charge of ıe author at certain periods of his illness. However erfect the administration of an asylum, the type of ursing which is something more than merely ficient will always require an amount of patience ıd self-devotion which is not exercised without ffort, and it will always be the purpose of this book point to the necessity for such effort, and its ıpreme value to the patient whose chief trouble is ıat he is without a friend. Mr. Beers has devoted is subsequent life to bettering the condition of the ısane in the United States, and it is fortunate for ıem that his malady has not recurred. He recently isited this country, where many members of the ledico-Psychological Association had the pleasure of ıeeting him.

IINOR MALADIES AND THEIR TREATMENT.

Fifth edition. By LEONARD WILLIAMS, M.D., Physician to the French Hospital. London: Baillière, Tindall and Cox. 1923. Pp. 414. 7*s*. 6*d*.

THE enthusiasm of youth, the experience of age, ombined with the ready use of a fluent pen, make the ew edition of this well-known book an instructive uide and comforter to the practitioner of medicine, e he young or old. It is full of useful information ained from the practice of one who is a careful bserver of all he sees, and who evidently delights ı meticulous analysis and loves tabulation. The hapters run on from one subject of common interest to nother, and give a vivid account of illness as it resents itself in the consulting and sick room. The eader cannot be dull for one moment while reading he circumstantial narration of those complaints with hich he is most familiar, for whatever may be his revious knowledge, he will be certain to find some riginal thought and suggestion either in diagnosis or reatment. Whether he will be inclined to follow all he arguments of the author—for example, those hereby he conclusively separates such diseases as heumatism and "goutiness"—is another matter, and hether he will find all treatment as successful as)r. Williams seems to suggest is open to question. But he cannot fail to learn much from this little ook that is useful in practice.

NFECTIVE DISEASES.

Die Experimentelle Bakteriologie und die Infektionskrankheiten, mit besonderer Berücksichtigung der Immunitätslehre. By Dr. W. KOLLE, Direktor des Institutes für Experimentelle Therapie, o. Honorarprofessor an der Universität Frankfurt a. Main; und Dr. H. HETSCH, Professor, Generaloberarzt und Mitglied des Institutes für Experimentelle Therapie in Frankfurt a. Main. Berlin and Vienna: Urban and Schwarzenberg. Pp. 1376.

THIS is a treatise upon the whole aspect of infective liseases, touching upon their clinical manifestations, liagnosis, pathology, and experimental investigation; t also deals with such animal infections as are of mportance in relationship to the study of human lisease. Of necessity a work of this scale must e largely a compilation; this is admirably put ogether. It is a type of book which is at present nuch wanted in the English language. In works on nedicine, in this country, we have nothing which so fficiently and broadly bridges the gap between the aboratory worker and the clinician. The latter is too ften content with methods which have had a long nd honourable past, but which can be adapted and mproved upon only if full knowledge of scientific nedicine be added to them. The laboratory worker, n the other hand, although he possesses an acquaintance with the more intimate workings of disease processes is, as a general rule, debarred from any active contact with cases of disease. There are thus few men who have the knowledge or the opportunity to produce such a work.

We recommend the book to all physicians who desire to know what has been done and can be done in the investigation of infective diseases.

MEDICAL AXIOMS, APHORISMS, AND CLINICAL MEMORANDA.

Second impression. By JAMES ALEXANDER LINDSAY, M.A., M.D., F.R.C.P. London: H. K. Lewis. 1923. Pp. 194. 6*s*.

THIS is an excellent little book, one which would have delighted the late Samuel Gee, and we can give it no higher praise. Dr. Lindsay is well known as professor of medicine in the Queen's University of Belfast and as a valued teacher in the medical school of the same University. The first chapter alone of the book contains a mine of information—e.g., 53: "Think of common diseases first." Some wise physician has said: "The young physician generally thinks first of an obscure disease and the old one of a common one, and both are occasionally wrong." But we agree with Dr. Lindsay that the safer way is to think of the common disease first. Again, take aphorism 60, a saying of Sir Dominic Corrigan: "The trouble with most doctors is, not that they don't *know* enough, but that they don't *see* enough." Too many of us *look* without seeing. The clinical memoranda are admirable. In the section on anæmia (p. 165) we rather question whether memorandum 94 is not a little too wide: "An anæmia which does not yield to iron is not chlorosis, provided sufficient rest and suitable diet are secured." Here are two aphorisms which may be taken together. The first on p. 6: "Few studies are more instructive, more full of warning, or more generally neglected than the study of the history of medicine." And the second on p. 160: "In the treatment of renal dropsy common salt should be excluded from the dietary." This treatment, applied it is true to dropsy in general, was laid down by John of Gaddesden in the Rosa Medicinæ, circa 1314. On the whole we can imagine no more useful book for practitioners of all ages.

EXAMINATION OF THE ORGANS OF SENSE.

Handbuch der biologischen Arbeitsmethoden. Vol. V.: Methods of Study of the Functions of Individual Organs of the Animal Organism. Part 7, Section 3, No. 105. Edited by Prof. Dr. EMIL ABDERHALDEN, Director of the Physiological Institute of the University of Halle. Berlin and Vienna: Urban and Schwarzenberg. 1923. Pp. 330. Fr. (Swiss) 13·5.

THIS is part of a large series of publications on physiological methods of experimental examination, and deals with subjects of very unequal medical interest. The first article, by Jakob Katzenstein, on the methods of exploring the mode of action of the larynx for voice and speech, gives a full historical description of methods of examination from Garcia's first use of the laryngeal mirror, and describes the application to the examination of the movements of the vocal cords of the stroboscope, an instrument designed in 1834 for the study of vibrating membranes. Photography and kinematography of the larynx are also discussed. Numerous experiments on the cerebral centres for speech are next described, and methods of measuring tone and volume of sound duly recorded, as also are methods of measuring the movements of the lips and palate in speech. The article occupies nearly half the volume and is a monument of industry and learning invaluable to the research worker in this field. H. Zwaardemaker contributes articles on examination of taste and smell; Adolf Basler on examination of skin sensation, tactile, thermal, and painful; and, finally, Karl Schaefer describes examination methods on the physiological conduction of sound from the air to the internal ear, including investigation of the effect of the auricle and meatus on the conduction of sound waves, and of the movements of the drum-membrane and ossicles to sound vibrations. The work is devoted to the description of methods and gives little or no account of the results obtained, and is therefore of more value to the research worker than of interest to the medical practitioner.

ATOMIC FORM.

With Special Reference to the Configuration of the Carbon Atom. By EDWARD E. PRICE. London: Longmans, Green and Co. 1922. Pp. 148. 5*s.*

IN any considerations affecting the constitution of the atom the phenomenon of crystallisation must have an important place, and it is fair to state that no theories of atomic or molecular constitution which ignore the facts connected with the crystallisation of the elements can be considered as resting on a sound basis. Whilst the constitution of the atom is the subject of physical theories widely separated from the ideas set forth in the present volume it must be admitted that the author marshals his arguments in a clear and concise manner. Some readers who could not accept the theory of atomic form as described will probably find the models of aggregates of the carbonoid an assistance when considering some of the problems of organic chemistry—by enabling them more easily to visualise the structures in three dimensions.

AROMATICS AND THE SOUL.

By DAN MCKENZIE, M.D. Glasg. London: William Heinemann. 1923. Pp. 164. 7*s.* 6*d.*

THE physiology of smell is but very imperfectly understood and smells themselves are curious things (if we may call a smell a thing). Dr. McKenzie refers at some length to the manner in which smells can call up incidents long gone by. It is significant how close is the anatomical connexion between the olfactory lobes and the frontal cortex; even reading about smells will recall the past. Anyone who has travelled in the East must certainly have been conscious of smells when there, and we know a medical man who travelled some 40 years ago in out-of-the-way parts of the East, who tells us that he can never read Kipling's "Miracle of Purun Bhagat" without an immediate mental vision of an Eastern road.

Dr. McKenzie discourses pleasantly about the sense of smell in insects, birds, and animals. There is some doubt as to whether the power which the males of certain moths—e.g., the Great Peacock of Europe and the allied Emperor moth of England—possess of finding their way to a female is really dependent upon smell—i.e., the reception of some material substance or upon some hitherto unexplained wave motion, as Fabre suggests. As regards vultures and other carrion-feeding birds, we may supplement Dr. McKenzie's remarks on p. 85 with a reference to Waterton's amusing essay on "The Faculty of Scent in the Vulture," and the two following essays.

This is an interesting book, if somewhat sketchily written, and the subject is one that deserves further inquiry.

ABDOMINAL SURGERY FOR NURSES.

Second edition. By HAROLD BURROWS, F.R.C.S., Assistant Surgeon, Royal Portsmouth Hospital. London: The Scientific Press. 1923. Pp. 144. 4*s.*

THOUGH this second edition has been enlarged as compared with the first, the author has still contrived to compress within a small space much valuable information as to the "why and wherefore" of many of the points peculiar to the nursing of cases that come to abdominal operation, both in their preparation and in their after-care. In writing a book for nurses a medical man aims to impart such information as will render a nurse's work more interesting and so to secure her intelligent coöperation. To achieve this end the terms used should always be the simplest; in this respect Mr. Burrows has, in spite of obvious care, been occasionally indiscreet. In a future edition the final chapter on feeding might with advantage be enlarged beyond the two pages that are at present devoted to this important part of a nurse's duties.

NUTRITION OF MOTHER AND CHILD.

By C. ULYSSES MOORE, M.D., M.Sc. (Ped.), Instructor in Diseases of Children, University of Oregon Medical School, Medical Director of the Coöperative Infant Welfare Society of Oregon. London and Philadelphia: J. B. Lippincott Co. Pp. 234. $2.

FOR English readers the value of this book is diminished by the fact that a large number of the recipes for foods are not practicable outside the United States. We regret this, because the book as a whole is eminently readable, and the author has given an account of recent advances in our knowledge of dietetics which is both accurate and readily comprehensible. The numerous illustrations are appropriate for the purpose of emphasising the importance of breast-feeding and sound dietetics. The volume fulfils its purpose, and is a useful text-book for the young American mother.

CHEMISTRY.

Bloxam's Chemistry: Inorganic and Organic. Eleventh edition. Edited by A. G. BLOXAM, F.I.C., and S. J. LEWIS, D.Sc., F.I.C. London: J. and A. Churchill. 1923. Pp. 832. 36*s.*

THIS well-known work has survived ten editions, the first appearing as far back as 1867. In these days it is difficult to compress a survey of so wide a field as inorganic and organic chemistry into a single volume, and the editors state that the present form of the work has necessitated a greater condensation than they could wish. The grouping of aliphatic and aromatic compounds will no doubt be criticised in academic circles, but there is much to be said for it from the educational standpoint, since substances of the same order in the two great divisions are brought together. Space has been found for short accounts of present views on the structure of the atom, the quantum theory, crystal structure, &c., whilst, as might be expected when so well-known an expert as Dr. S. J. Lewis is joint editor, the subject he has made so peculiarly his own—viz., spectroscopy—has been rewritten and expanded.

We are impressed with the simplicity of the volume and with its accuracy. It is essentially a text-book for the student.

JOURNALS.

THE JOURNAL OF OBSTETRICS AND GYNÆCOLOGY OF THE BRITISH EMPIRE (Vol. XXX., No. 3).—The current autumn number of this journal maintains the standard established by its predecessors, and justifies the statement that the magazine now holds a position second to none in the obstetrical and gynæcological world.—Mr. Comyns Berkeley, in a brief editorial note, points out that the journal was first published in 1902, being founded by a number of leading obstetricians and gynæcologists not with the object of pecuniary profit, but with the patriotic intention of having a journal which should be a credit to the science, and which should provide a complete and impartial record of British work. Since its inception the journal has, in fact, continued to be financed from motives of public spirit, and Mr. Berkeley issues a stimulating appeal to the younger generation of obstetricians and gynæcologists to shoulder in their turn the burden so long borne by their seniors. From the excellence of the publication, apart from purely patriotic motives, we venture to hope that this appeal will not be neglected.—In the present issue Mr. Victor Bonney contributes a practical aper upon the pathology and treatment of certain ses of spasmodic diurnal incontinence of urine in omen. He points out that its occurrence is practically limited to women who have borne children, and at the cause lies in laxity of the anterior portion of e pubo-cervical muscle sheet.—The subject of erations on the round ligaments for the cure of ckward displacement of the uterus is discussed by r. Haig Fergusson, who criticises the present vogue r the Gilliam and Baldy-Webster technique, and escribes a modification of the Alexander-Adams eration. In his opinion this operation as modified free from the disabilities introduced by the former ethods, and removes the main objection to the assical Alexander-Adams operation—viz., the stigma working with inadequate knowledge of the con- tions in the pelvis.—An interesting study of the istological appearances of the wall of the pregnant terus at term in the case of the lesser mammals ppears from the pen of Prof. Keiffer, of Brussels. ections of the uterus, stained by the silver method Ramon y Cajal, demonstrate a very elaborate stem of ganglia and nerve axis cylinders extending om the mesometrium through the two muscular rata to the mucous layer. This paper throws much ew light upon the complex problem of uterine nervation.—Dr. Norman Cruikshank, working on ehalf of the Medical Research Council, describes a se of suppression of urine with symmetrical necrosis the renal cortex in a parturient woman. The ecrosis was apparently the result of thrombosis of e finer arterioles, the latter due to vascular spasm nd induced presumably by the action of an eclamptic xin.—Ante-natal physiology and pathology receives ttention in a paper by Drs. Lucas Keene and Evelyn ewer, upon the results of an investigation into the lative weights of fœtal organs at various stages of evelopment. These authors find that there is a efinite slowing down of the rate of increase in eight both of the fœtus and its organs between he thirty-third and thirty-ninth weeks of gestation. hey suggest that at this time metabolism is directed wards the laying down of fat, to the detriment of itrogen retention. Attention is drawn to the fact hat this period coincides with the rise in the urea ontent of the maternal blood, and that a failure in aternal nitrogen adjustment may account for the equency of eclampsia at this epoch.—An article of onsiderable general and practical interest is that of r. John Hewitt on bacterial infection of the urinary ract complicating pregnancy and the puerperium. his author agrees with Leith Murray's statement hat "in the absence of pus there is no real patho- gical significance in the demonstration of coliform rganisms in female urines." He further finds that he most accurate laboratory indication of pyelitis is he presence of pus cells and organisms in a single esh drop of uncentrifuged urine. The centrifuge in his connexion is unnecessary and misleading—a fact f some importance to the general practitioner.—r. Berkeley republishes in convenient form his nportant opening paper on the use and abuse of bstetric forceps from the Section of Obstetrics and ynæcology, British Medical Association meeting, 923. To this reference has previously been made. e also describes a convenient and simple form of ulval retractor designed for operations on the erineum and posterior vaginal walls when assistance not available.—Other contributions include papers n diffuse endometromyoma of the pregnant uterus, y Dr. C D. Lochrane; chorio-angioma of the lacenta, by Dr. Gilbert Strachan; a new method of erforming salpingostomy, by Mr. A. Gray; and a escription of a clamp forceps for controlling æmorrhage when performing myomectomy, by r. Bonney.—The Review of Current Litera- ure, under the directorship of Dr. Frank Taylor, rovides the reader with a very complete quarterly ncylopædia of current views throughout the world on bstetrical and gynæcological subjects, and it is ndeed a most valuable asset to all working at the pecialty.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the principal health statistics of Birmingham and Liverpool for 1922:—

City.	Estimated population (R.G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Birmingham ..	945,100	21·0	11·9	1·1	1·2	2·8	82	178	3·0
Liverpool ..	823,095	26·1	14·6	1·6	1·0	4·2	91	213	2·8

BIRMINGHAM.

Dr. John Robertson opens his report for 1922 with the following graphic statement:—

"Notwithstanding the continued distress arising from a large amount of unemployment and the horrible conditions in which many people are living owing to lack of proper housing facilities, the general health of the community was exceedingly good during the whole of the year. I believe that this maintenance of relatively good health has been due to the care taken by various organisations, but particularly the board of guardians and the Relief Committees, to enable the citizens who are in poverty to obtain sufficient food. I am of opinion that the lesson of the last two years, as well as one of the lessons we learned during the war, is that much more care ought to be taken by the community in providing an adequate supply of food of the proper quality, cooked in the proper way, and served at regular intervals. Not only was the general death-rate last year a good one for a large industrial town, but the infant mortality rate also was low, the incidence and mortality of most of the infectious diseases was relatively good, and, generally speaking, it is correct to say that Birmingham enjoyed unusually good health during this period of distress. All forms of tuberculosis were relatively low in incidence and in mortality."

Dr. Robertson thinks the Registrar-General's estimate of the population is over 17,000 too high. During the year the guardians gave relief to a proportion of the population varying from one-thirteenth to one-ninth, and unemployment insurance benefited a number of persons varying from 54,000 to 86,000. Care was taken to detect general deterioration of health, but no evidence of underfeeding or of obvious damage to the health of the people was obtained. During the past six or seven years measles has been less fatal than formerly, probably owing to the spread of knowledge by health visitors and district nurses as to the simple precautions necessary. Dr. Robertson thinks that further careful observation is necessary before the Schick test can be introduced into the ordinary practice of health departments. It is being tried at the City Fever Hospital. The Tuberculosis Department endeavours to mitigate overcrowding in families, invaded by tuberculosis, by loaning beds and bedding and 110 sleeping shelters, and also by supporting the applications of such families for municipal houses.

The following figures, showing the proportion of patients, whose sputum contained tubercle bacilli, treated during the six years 1913–18 and who are now working regularly, are interesting:—

Year.	No. treated.	Now working regularly.	Year.	No. treated.	Now working regularly.
		Per cent.			Per cent.
1913	505	22·1	1916	207	27·5
1914	573	28·2	1917	212	37·7
1915	308	24·6	1918	191	25·6

Some of the difficulties in the attempt to eradicate tuberculosis from the dairy herds supplying Birmingham with milk are indicated. At the beginning of the year 16 herds continued in the scheme, five in the city and 11 outside. One herd of about 21 cows which had been in the scheme for several years has dropped out. During the year there were six applications to be included in the scheme. Three of these six herds contained so many reactors that the owners decided not to continue with the scheme. The remaining three herds are to continue in the scheme, making a total of 19 herds in the scheme at the end of 1922. The approximate number of cows in these 19 herds is 501, of which 190 are in the five city herds. Of the 16 herds in the scheme at the beginning of 1922, only six yielded no reactors at the half-yearly testings; nine herds together yielded 20 reactors and the remaining herd yielded no less than 19. In the case of the last-mentioned herd of about 48 cows it is explained that the owner had not fully complied with the conditions, by promptly getting rid of 11 reactors found at the last testing. Most of the cows (in these 16 herds) which failed to pass the test were newly acquired cows which were purchased subject to their passing the test and were returned to the vendors. In some cases the reaction was doubtful, and when this occurs the cow is isolated and re-tested after a month or six weeks. In the city cowsheds, which house 1750 cows, only one tuberculous udder was found during the year. If we subtract the 190 city cows included in the "tubercle-free" scheme, this gives the surprisingly low figure of one tuberculous udder for 1560 stalls, which is a contrast to the Sheffield experience during 1922 of 23 tuberculous udders from 2350 stalls, or one tuberculous udder per 100 stalls.

Dr. Robertson gives tables showing that the infant mortality rate during the quinquennium 1918–22 was in the Central wards 108·6, in the wards of the middle ring 81·8, and in the outer ring wards 62·1; but that for the first few weeks of life there is very little difference between the mortality rates in the three groups of wards.

The total births in Birmingham last year were 19,850. Midwives attended 13,128 confinements, or about 60 per cent., and sent for medical assistance in 1987 cases, or over 15 per cent. of their cases. A systematic effort is being made to secure the coöperation of the midwives in carrying out ante-natal work, and an annual certificate will be issued by the health committee to each midwife who carries out these duties satisfactorily. Ante-natal registers are supplied to them free of charge and a urine-testing apparatus at cost price. In the case of any prejudicial ante-natal condition the midwife is to undertake to send or accompany the patient to her doctor, or to the maternity centre, if she has no doctor or is too poor to have one. Indiarubber gloves are supplied to the midwives and sterilised midwifery outfits to patients, both at cost price. There were 74 cases of pemphigus neonatorum with 11 deaths which came to the knowledge of the inspector of midwives. A special explanatory leaflet was issued to each midwife. The known damage to sight by ophthalmia neonatorum was—one case, left eye blind, right eye severely damaged, and another case, with a scar below the pupil.

The report of Dr. E. H. R. Harries, medical superintendent of Little Bromwich Hospital, contains some interesting particulars as to the working of a system of bed isolation or barrier nursing. The first 800 cases were treated with a wall-space of only 9 feet per patient. The system broke down six times in 800 cases, thrice after the introduction of chicken-pox in the incubation stage, twice after the introduction of measles at a very early stage, and once after septic scarlet fever. In a further series of 293 cases with 12 feet wall-space, there were two cases of cross-infection, after the introduction of incubating measles and scarlet fever respectively. Dr. Harries is of opinion that the eight failures in 1000 cases were due to a flaw in technique and to human-borne rather than air-borne infection. Incubating mumps was several times introduced without causing cross-infection, also whooping-cough.

The paramount need in Birmingham, as everybody knows, is more houses. During the year 902 houses were completed by the corporation and 382, mostly villas, by private enterprise. This number does not provide for the ordinary growth of the population. Dr. Robertson gives his reasons for thinking it is doubtful if ever private enterprise will again play any substantial part in providing small dwelling-houses. Conditions are getting more distressing, and Dr. Robertson regards it as incumbent on the municipality to keep on building.

LIVERPOOL.

Dr. E. W. Hope tells us that during the year further coöperation has been arranged among the Merseyside boroughs. In the event of any disease scheduled under International Agreements arising in any of these areas, the fact will be at once reported to the port medical officer for communication to the consular bodies. In the event of the outbreak assuming grave proportions the medical officer of health concerned will be entitled to call upon his colleagues for assistance. The possibility of unifying the small-pox system and so preventing the very undesirable multiplication of small-pox hospitals has also been under consideration, and steps have been taken in this direction. The provision of the new abattoir does not advance as quickly as Dr. Hope would like. The photographs which he gives of an up-to-date abattoir (Edinburgh) and of the wretched accommodation provided at the obsolete Liverpool abattoir are eloquent testimony of the urgency of this question. The city council have purchased a site of 7½ acres adjoining the Stanley Cattle Market (itself occupying 7½ acres) which is approached by railway sidings and adequate for all the purposes of a modern abattoir. Negotiations have been opened with the Mersey Docks and Harbour Board for the provision of a landing-place on the Liverpool side for imported cattle, but Dr. Hope does not think the scheme ought to be hung up pending the outcome of such negotiations.

The gravity of the position in regard to housing still remains, in spite of the fact that the corporation have erected upwards of 5000 houses and converted army huts into 488 bungalows during the last three years. The number of houses erected by private enterprise is negligible, and there are at the moment several thousands of applications from persons housed under bad conditions who are well able to pay reasonable rents for accommodation could it be found. "It is not necessary," says Dr. Hope, "to dwell on the position of families whose accommodation is limited to one room for all purposes, but it is clear that such conditions are gravely prejudicial to the public health and the welfare of the city." Some of the incidental results are an increased demand for admission to hospital for minor ailments and for maternity homes, increased risks of the spread of tuberculosis and of the quick relapse of patients returning from a sanatorium, and interference with education by the ill-health of children living under these conditions. A large part of the time of the health visitors is occupied in dealing with conditions arising from the house shortage. The Housing Committee are keenly alive to the unfortunate plight of thousands of applicants whom it will be impossible to house for a number of years at the present rate of building. It is, therefore, says Dr. Hope, a matter of urgent necessity that every possible facility should be accorded private builders in order to induce them to resume their normal industry.

Liverpool and the Merseyside boroughs have asked the Ministry to receive a deputation on the subject of compulsory treatment for venereal diseases. The matter was postponed pending the report of the Trevethin Committee, and Dr. Hope points out that this Committee in its report has recognised the necessity for special measures in special areas. Towards the end of the year legal, medical, and financial officers from the Ministry visited Liverpool to study methods in operation, and Dr. Hope expects that one point, in which efficiency and economy go hand-in-hand, is likely to be achieved—namely, the amalgamation of the medical inspection of school-children and the medical supervision associated with elfare work. During the influenza epidemic in the rly months of the year there was a great excess of male deaths, the excess being at the child-bearing ges and the age-period over 50. Altogether there ere 123 male and 210 female deaths recorded as om influenza.

A chart is given which shows that the marked decline deaths from excessive drinking which occurred oincidently with the restricted sale of alcoholic quors during the war still continues. A similar bservation applies to deaths of infants from suffocaon. Thirty deaths from gas-poisoning were recorded uring the year, 17 accidental and 13 suicidal. The odies of 438 stillborn babies were examined by the ity bacteriologist. Of these only 30 gave positive vidence of syphilis, while 21 were suspicious.

St. Paul's Eye Hospital of ten beds and cots for ne reception of infants (with their mothers) suffering om ophthalmia neonatorum has proved of great alue. Nevertheless, the damage to the eyesight of urvivors from this disease was considerable. In wo cases the sight of both eyes was lost, in two cases he sight of both eyes was seriously damaged, in three ases the sight of one eye was lost and the other eye as normal. Delay in bringing the disease under roper treatment is mentioned as a cause of these ad results. Ten cases died under treatment and the esult is not given in the case of five under private eatment, one in a Poor-law institution, and one emoval. The section of the Liverpool Corporation ct, 1921, dealing with the registration of lying-in omes came into force in April, 1922. The number of pplications received was 60 and of these 54 were pproved after investigation of the practice and remises. The number of rooms registered in the 4 homes containing 145 beds was 110, with 15 dditional emergency rooms. The number of live irths which took place in these homes was 482 and f stillbirths 10.

In the section dealing with tuberculosis interesting articulars are given of the after-history of Liverpool ases of non-pulmonary tuberculosis discharged from easowe Sanatorium. Of 260 cases discharged with he disease quiescent during 1919, 1920, and 1921, he following was the condition in December, 1922: 28 were fit, 13 had been readmitted for recurrence, 3 had been readmitted for deformities, 5 had ied, and 11 were not traced. Of the five deaths, wo were from phthisis, one from recurrence of the on-pulmonary lesion, and one from a non-tuberculous ause. In all except one the non-pulmonary lesion ad remained quiescent. A third of the 228 fit for ork "were unable for physical reasons to commend hemselves to an employer," and it is pointed out hat this raises the question of after-care or schools for his type of case, so that they can be taught some killed trade or specialised occupation which will ndow them with a greater labour value.

SCHOOL MEDICAL SERVICE.

Scarborough.

The axe of so-called economy has not spared carborough; it is unfortunate that it should have allen on the excellent nursery school which was the esult of the past few years' effort in this direction, nd was a feature of the school medical officers' revious reports. The nursery class established in he east end of the town is still alive in the Friarage School. The conditions here are not ideal, there is o garden, but it provides accommodation for between 0 and 80 boys and girls under 5 years of age. There ere 44 new admissions during the year. Fortunately, lthough unrecognised by the education committee, he Leamer-road Nursery School, which is a separate uilding with a large delightful garden, has not ntirely ceased to function—voluntary contributions re helping to keep it alive, and though the numbers n attendance have fallen, it is to be hoped that its clipse is only temporary, for its entire disappearance ould be a matter for regret not only to Scarborough ut to all educationists who have watched the growth of the nursery school movement. During the past year 1890 children were inspected in the routine age romps, and altogether 2809 children were medically examined. Dr. S. F. Linton complains that the worst cases of uncleanliness, of which there were 90 altogether, are not Scarborough children but children from industrial towns, and some cases have had to be cleansed at the clinic and their hair cut. The number of children found with ringworm was 66 as against 102 last year. The number is still high, and as there is no X ray treatment available, the school attendance of these children is seriously interfered with in spite of the most careful treatment with ointment. Dr. Linton experiences difficulty in persuading parents to have children with defective vision examined under a mydriatic. "The modern mother classifies it in the same category as vaccination —an unnecessary and unwarrantable interference with the comfort of her child." Of dental cases requiring treatment, 82 per cent. were dealt with. No means for general anæsthesia is available, although one or two cases especially requiring anæsthesia have been sent to the local hospital for treatment.

Dover.

Nearly one-half of the 5714 children in attendance were medically inspected in the routine group, and of these 902 had defects requiring treatment, while 294 were kept under observation. The school clinic was open for treatment on 188 occasions, the children treated numbering 1118, of whom 717 required dental treatment. There were 91 cases of ringworm, 131 less than the previous year, and the amount of impetigo also showed a considerable decrease. Cases treated have certainly covered a wide range: goitre 2, abdominal tuberculosis 2, tuberculosis of lungs 8, respiratory defects 15, vertigo 2, anæmia 13, pleurodynia 3, to mention only a few. There were also 56 cases of debility and 33 of enlarged glands. Dr. A. B. McMaster regards these two classes as very important, and urges that something should be done for the education and treatment of tuberculous and pre-tuberculous children such as these 56 cases of debility represent, stating that the number of such cases is increasing owing to economic conditions.

Northampton.

Since the beginning of the present year the school work has been under the supervision of Dr. J. D. McCrindle, who is also medical officer of health. Dr. G. H. Skinner, who resigned in October, 1922, has been responsible for the work dealt with in this report. Of 3162 children medically examined, 33 per cent. were referred for treatment or further observation, and of the 662 referred for immediate treatment 81·9 per cent. actually received it. The total number of cases of skin disease treated at the school clinic was 1027 cases out of 1140 cases reported.

The school dentist saw 2479 children, of whom 1436 received dental treatment. Mr. A. S. Anderson, the school dentist, states that during the six and a half years he has been school dentist here he has treated 9503 individual children, 5243 of whom had their teeth rendered absolutely free of decay. During that period he did not find any evidence to support the old theory that sugar is the cause of dental caries, and states that the poorest of poor children have the best teeth. "If they have it seems an odd argument, as the staple diet of such has been for many years bread with inferior jam, treacle, or syrup. Most of the children I find with perfect teeth admit the free use of sweets, while many with the worst are those whose parents say they have denied them sugar in any form." He suggests that children should be treated in the pre-school period. Many children, a number of them breast-fed, show well-defined caries on the eruption of the temporary teeth, and in some infants there is a rapid general dental decay, suggesting that the condition of the health of the expectant or nursing mother needs investigation. Decay of the permanent teeth is comparatively rare when any sign of decay in the temporary teeth has been thoroughly eradicated before the eruption of the permanent set, and Mr.

Anderson suggests that where treatment of a bad case has been delayed until the first permanent molars and incisors are in place the surfaces of contact and fissures are almost always chalky in appearance, and despite cleanliness are inclined to break down. This statement is one that should be taken seriously, and is one more indication that the pre-school age is the age to which more attention should be drawn.

MENTAL HOSPITAL REPORTS.

The annual report of the *Cardiff City Mental Hospital* is distinguished, as usual, by records of a large amount of research. Only brief outlines of the nature of these investigations are given, since much of it is to be published in extended form elsewhere. It seems unfortunate that the results of so large a volume of work should be scattered amongst various journals under different dates, or published only in abbreviated form in the report. The standing of the hospital is such that these reports might well be concentrated in a separate publication. The main bulk of the work under review was serological and chemical, the latter comprising estimations of various constituents in the cerebro-spinal fluid, blood, and urine, which have been carried on for some years, and the former a variety of attempts to identify toxins by animal immunisation with body fluids or extracts. A study has been made of gastro-intestinal function by radiography, and the effect of various intestinal antiseptics has been observed on the clinical condition of recent cases. Blood-groups, urea excretion in dementia præcox, and the basal metabolic rate have also been studied. Strangely enough, the only investigation the results of which are given in detail appears the least complete and discriminating of any, the bacteriological examination of urine from a series of 100 cases, a variety of organisms being found, some of which appear not to have been identified. As regards the general work of the hospital, a new departure has been made in forming a social after-care association, which, with the out-patient clinic and the hospital itself, should develop into "a complete organisation for dealing with the problem of mental disorders from the point of view of prevention, cure, and warding-off of relapse."

Several innovations and improvements are recorded in the annual report of the *Dorset Mental Hospital*. A house is being built for the assistant medical officer, and extensive reconstruction of the drainage system has apparently had the effect of abolishing enteric fever, which has been endemic for some years. A dental surgeon has been appointed, and an out-patient clinic established in Dorchester at the County General Hospital. The commissioner's report acknowledges with gratitude the readiness with which the management have considered and carried into effect such suggestions as he has made in the past. A considerable amount of pathological work has been done, and in order to allow the medical officers further time for this, the appointment of a dispenser is recommended. In view of certain treatment which has been undertaken, it appears to the commissioner desirable that this (and in fact any) institution should be provided with continuous and electric baths.

Reports and Analytical Records.

OLEO-BI.

(Hoffmann-La Roche Chemical Works, Ltd., 7–8, Idol-lane, London, E.C. 3.)

The introduction of bismuth as a specific remedy for syphilis was followed by an extensive trial of numerous preparations. Some 18 months ago at the Académie des Sciences MM. R. Sazerac and P. Levaditi brought forward evidence that tartrobismuthate of sodium and potassium in certain combinations, applied in the form of an ointment, prevented the development of syphilis if the application was made within one to four hours after contamination, while they expressed the opinion that bismuth lactate administered by the mouth retarded the breaking out of specific lesions. Last March in the *Schweizerische medizinische Wochenschrift* Dr. E. Ramel, of the Dermatological Clinic in Zurich, recommended an oleinate of bismuth, l'oleo-bismuth "Roche," the formula of which is $(C_{17}H_{33}COO)_3$—Bi. The preparation is now on the English market. In it the bismuth is very finely suspended and the stability of the suspension is so great that even after standing for months the solution shows no deposit. The treatment consists of bi-weekly intramuscular injections of 2 c.cm., 20 or 30 injections being given in one series, during which the total amount of bismuth administered is 2–3 g. The therapeutic results achieved in Zurich appeared to be equal to those obtained after the use of the French preparation Trépol. The results achieved during the past two years by the use of bismuth in the treatment of syphilis have stimulated the Hoffmann-La Roche chemical works to produce a second new preparation Tartro-Bi for which certain therapeutic advantages are claimed when employed intravenously.

PROTAGULIN.

(John Bell and Croyden, Ltd. (Incorporating Arnold and Sons), 50–52, Wigmore-street, London, W. 1.)

We have received a sample of this preparation, which is devised to bring about natural clotting of blood by the action of thrombin. It is supplied in the form of a powder, and so long as it is kept in properly sealed tubes will retain its potency for an indefinite period. It is issued in tubes of two sizes, the smaller size sufficing to make 1 c.cm. of solution with normal saline, the larger size containing enough to make double the quantity. The coagulant is prepared and standardised in the physiological laboratory of St. Mary's Hospital and is particularly recommended for use in hæmorrhage following extraction of teeth, in which capacity it has been noticed by Sir Frank Colyer in the last edition of "Dental Surgery and Pathology." The solution can be used upon gauze plugs in cases of epistaxis, or as an application upon gauze under a suitable bandage in cases of surface bleeding.

URAZINE.

(Dick, Coates and Co., 41, Gt. Tower-st., London, E.C. 3.)

Urazine, or citro-salicylate of piperazin, placed upon the market by Messrs. Dick, Coates and Co., is manufactured by the Laboratoire des Produits "Usines du Rhône," 21, Rue Jean Goujon, Paris. It is supplied in effervescent granules, the dose being one to two teaspoonfuls of the granules in half a tumbler of water, to be administered under the direction of the physician. It is usually found most convenient to take the drug with the two principal meals of the day. The chemical constitution of Urazine is as follows: 2 molecules of piperazin, 1 molecule of citric acid, and 1 molecule of salicylic acid united in 1 molecule of a "double" salt, which contains 343 parts of piperazin to 275 parts of salicylic acid, and 382 parts of citric acid. The intention is to combine the properties of salicylic and citric acids with those of piperazin whose action as a solvent of uric acid has been proved in the laboratory. As is well known, this solvent action of piperazin is a matter of discussion, but the experience of many gouty persons seems to be that their conditions are benefited by its exhibition. The preparation taken in the suggested dose makes an agreeable beverage, so that the drug may well be employed in many of the arthritic and neuralgic affections accompanying gout or rheumatic conditions.

Iodine-Medol.—In a note on this preparation, which appeared in The Lancet of Sept. 15th, we presumed that by the term "oxygenated hydrocarbon" was meant the mixture of liquid paraffin and oleic acid referred to in the British Pharmaceutical Codex under the name of "parogenum." Messrs. William Pearson, Ltd., desire to point out that the hydrocarbons in iodine-medol consist of oxygenated paraffinoids, whereas in "parogenum" there is no question of oxygenation.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 17, 1923.

THE PANEL SETTLEMENT.

THE panel crisis has become a panel settlement. As was anticipated, the Special Panel Conference on Wednesday last decided to accept as a whole the offer made by the Minister of Health in his letter of Oct. 31st, and to accept in particular alternative (*b*) in clause (5) dealing with remuneration. Accordingly, a special court of inquiry will be set up by the Minister as soon as possible and instructed to report on the capitation fee to be paid as from Jan. 1st next. The contract will be made on the basis of the fee recommended by the court of inquiry, the Government undertaking to go to Parliament for the necessary legislative sanction and the profession undertaking to accept the recommendation. The court of inquiry will be asked to report as soon as possible, hearing any evidence tendered on behalf of the Ministry, the profession, the approved societies, or other interested parties. No doubt the Insurance Acts Committee hardly felt itself justified in recommending any settlement which might involve financial sacrifice to many panel practitioners for years ahead. But panel committees themselves had accepted this sacrifice as the lesser of two evils, the Committee might have been glad to fall in with the other settlement which would have ensured a period of welcome peace. The Committee was willing to face the prospect of going through the same ordeal again in 12 months' time, and the Conference has agreed with their leading.

Widely divergent reasons may be given by interested parties for the decision reached by the Panel Conference. On a previous occasion of financial stringency the Conference accepted a reduction in the capitation fee from 11*s.* to 9*s.* 6*d.*, following an appeal of a Minister of the Crown to panel doctors to make some sacrifice for the common good in order to carry on an essential service for which at the moment their service could not be adequately remunerated—put briefly, the acceptance was on grounds of citizenship. The approved societies would certainly have argued that acceptance by the doctors of 8*s.* 6*d.* for five years, being in effect not more than a 6 per cent. rise on the fee of 1914, was a tacit admission that the service was overpaid at the earlier date. We think it may be taken that the Conference actually construed the position somewhat as follows. The Minister of Health, faced with a practically unanimous resignation from the panel, and having looked into the whole matter in a mood sobered by a serious position, decided that "under the present circumstances" so much, and so much only, could be paid out of insurance funds. Should this decision be modified or reversed by a court of inquiry, within a year the Minister—we speak of the office, not of the individual—convinced against his will would have the opportunity of showing that he held the same opinion still. But arguments were put forward to prove that the services and remuneration of the practitioners were not properly adjusted, these arguments remained unrefuted, and therefore the medical men were ready to face a court of inquiry. Two documents widely circulated during the past few days no doubt helped towards this decision. The first is a copy of the letter sent to the Minister of Health, on behalf of the executive bodies of approved societies, dated Nov. 1st, and signed by Sir THOMAS NEILL. This letter is a statement of the societies' case against "the proposal to appropriate towards the remuneration of panel doctors for the present type of medical service sums contributed by the insured population and their employers for other benefits." One may well ask what is here referred to? The Minister of Health is the trustee of all the funds contributed by insured persons, their employers and the State, towards an insurance scheme including many forms of benefit; it is incorrect to say that particular contributions are earmarked for any particular benefit, and equally incorrect to suggest that the taxpayer's contribution ought to constitute a separate fund. We now know from the Minister's formula which are the primary benefits under the Insurance Acts, and that the proper amount of remuneration to be paid to the doctors is a matter to be determined on its merits by the Government after due inquiry and after negotiation with them. Those who still are impressed by anxiety for other benefits under the Acts should refer again to a document read with great effect by Dr. H. B. BRACKENBURY at a previous Panel Conference,[1] in which this paragraph occurs:—

> "We agree that the service would be such as to justify a capitation fee to the doctors of substantially the present amount [that is, 9*s.* 6*d.*] without ruling out of the present consideration any claim by the medical profession for something beyond this, and we have satisfied ourselves that the National Health Insurance Fund in the aggregate contains sufficient money to meet the cost without lowering or endangering the provision of the other benefits, whether normal or additional, to which insured persons are entitled."

This document was signed by two members of the emergency committee appointed by the executive bodies of approved societies. In contrast to the official pessimism of the approved societies in regard to insurance finance, we have the report on National Health Insurance Medical Benefit prepared by the Joint Advisory Committee on Public Health and accepted by the Trades Union Congress General Council and the National Executive of the Labour Party. This document, of which we give a careful summary on another page, sets out in detail the various funds connected with National Health Insurance, including those in respect of which approved societies are officially regarded as having little, if any, financial interest. The conclusion at which the Joint Advisory Committee arrives is that it is possible, within the ambit of unallotted funds constituted out of present weekly contributions, to find sufficient to secure not only a continuance of the existing services, but also the introduction of various improvements, and this at a cost which would not deprive the insured persons of any of the benefits which they at present possess. Despite the alleged prospect of depreciation at the completion of the second valuation, there are certain profits to set off against losses—e.g., low sickness incidence, and a continuance of the improved interest-earning power of money. These two reports really balance each other out; and, whatever may be urged to the contrary within the next few weeks, the new Parliament can feel satisfied on the highest actuarial authority that the financial status of the present scheme will allow of continued development and the provision of adequately paid medical service.

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[1] THE LANCET, Oct. 27th, pp. 948, 949.

No difficulty, we believe, will be found in obtaining Parliamentary endorsement of Sir W. Joynson-Hicks's offer. The Panel Conference has decided to refuse a prolonged period in which controversy might cease and during which a Royal Commission could decide what is in the best interest of the national health. A settlement for a period of five years would have had its points, giving ample time for the service to settle down again, while the Commission was affording opportunity for full investigation both of the immediate and potential value of the insurance service to the community. However, the Conference has decided on the bolder course, and courage commands esteem. We trust that no further attempt will be put forward to make health insurance entirely self-supporting. Properly developed and coördinated, the scheme of medical services under the Insurance Acts should become, as years go by, the most important of the agents of the Ministry of Health for improving the health and safeguarding the lives of the industrial workers.

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A STUDY OF OSTEITIS FIBROSA.

Though our knowledge of morbid histology still leaves much to be desired and authorities differ among themselves on the interpretation of facts which are accepted by all, our conceptions of the morbid processes of the body rest, on the whole, upon a fairly sound structural basis. The skeletal system is, however, a glaring exception to this generalisation. While in most pathological laboratories histological examinations are made every day of the digestive, respiratory, circulatory, or genito-urinary organs, bones are but rarely microscoped, and because of this we know very much less about diseases of bone than we do about diseases of other tissues. The explanation lies, of course, in the technical difficulties which must be overcome, and the amount of time and labour involved in the preparation of satisfactory histological material from the skeleton. To examine a diseased bone with anything like the same thoroughness which is commonly devoted to a sclerotic kidney or an interesting tumour would occupy so long that in the routine of a busy laboratory the task is seldom attempted, and this aspect of morbid histology is poorly represented in the current literature.

In view of these considerations, pathologists will welcome the appearance of the October number of the *Edinburgh Medical Journal*, for it is devoted entirely to a long paper by Dr. James W. Dawson and Mr. John W. Struthers on Generalised Osteitis Fibrosa with Parathyroid Tumour and Metastatic Calcification. These authors describe the remarkable case of a man, 49 years of age, who first came under observation in January, 1921, on account of delayed union of a fracture of the humerus. X ray and microscopic examination of the humerus showed a condition of fibrosis and decalcification suggesting an early stage of osteitis deformans, and similar changes could be detected in the cranial bones. After a very brief period in hospital the patient's condition, both local and general, showed extraordinary improvement, and X rays demonstrated the redeposition of lime salts in the humerus. He left hospital, but returned within a few weeks with a second fracture of the bone which healed in about five weeks. After a period of good health he was seized with a sudden heart attack, and was again admitted to hospital, but died a few hours afterwards. Post-mortem examination revealed an extensive condition of osteitis fibrosa of the left humerus, femur, and of the bones of the skull. The left lower parathyroid body was converted into a papillary adenoma, and practically all the organs showed calcareous infiltration. The authors describe in detail, illuminating their text by many admirable illustrations, the histological changes in the affected bones. The general conclusions arrived at are that the fixation of calcium and the metabolic activities of bone are controlled by the bone cells, which, in turn, are themselves under the influence of hormones derived from the parathyroid glands. The parathyroid adenoma in this case is regarded as an indication of an abnormal physiological state, an anatomical hyperplasia reflecting a functional hyperactivity called for by the needs of the bone cells which had been injured and rendered physiologically impotent by some unknown agent.

These views may or may not receive general acceptance, but this complete record of a case forms a most valuable addition to the literature of the subject. The paper contains, however, more than the record of a single case: it is a clear and critical presentation of current knowledge and teaching of the pathological processes involved in bone dystrophies. Such debatable processes as halisteresis and metastatic calcification are discussed very fairly and with full references to the literature, and the various neoplastic giant-cell formations are analysed in detail. In short, the authors are to be congratulated upon a piece of work which will be of actual assistance to most workers in this field, and of interest to all

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PSYCHOPATHIC SYMPTOMS IN MINERS' NYSTAGMUS.

While the mechanism which produces nystagmus in miners may be in doubt two things are certain. Nystagmus may be present without causing subjective symptoms, while psychopathic symptoms, such as tremor, disordered action of the heart, and sleeplessness, occur in miners with or without oscillations of the eyeball. To these facts we called attention in discussing not long ago a new theory of coal-miners' nystagmus. In a letter which appears on p. 1110, Mr. W. Inman returns to this important issue. The second report of the Miners' Nystagmus Committee of the Medical Research Council makes clear that it is not the nystagmus alone that demands compensation. Compensation is paid largely for the associated psycho-neurotic symptoms, and the Committee suggest the adoption of a stricter standard of physical signs. But what physical signs exist beyond the nystagmus? The standardising value of photophobia and blinking of the eyelids is discounted by the observation that they occur commonly in shell shock, for in that association they are unhesitatingly regarded as hysterical. Mr. Inman suggests that the oscillation of the eyeballs may itself be only a part of a psycho-neurotic state. He really offers two possibilities: that the nystagmus is a harmless physical eccentricity, upon which it chances that psycho-neurotic symptoms are hung, as upon a peg; or that it is only one symptom, and not a constant one, of a psycho-neurosis which, though it occurs in miners, differs in no other way from disorders with which we are already familiar. An obvious objection to the latter possibility is that nystagmus occurs generally as part of certain organic disorders and can only very exceptionally be imitated. But non-volitional manifestations, such as tachycardia or tremulous eyelids, are common in the psychoneuroses, and, though they are valuable diagnostic indications, yet they may be absent in patients with disabling mental symptoms, or, on the other hand may be almost the only indications of a psycho-neurotic state. Nystagmus behaves similarly. It may be present in a severe degree in certain cases without interfering with the man's working capacity, whilst the third schedule to the Workmen's Compensation Act seems to reduce diagnosis to an absurdity by speaking of "the disease known as miners' nystagmus, whether the symptom of oscillation of the eyeballs be present or not." The report notes, too, that the nystagmus may disappear as the associated symptoms increase. This sequence is a commonplace in clinical psycho-pathology and was the rule in shell shock; the initial manifestations—coarse tremors, mutism, paralyses, and the like—usually disappeared and subjective troubles increased.

Current opinions as to ætiology are supported by statistics which show a correlation between the incidence of the disorder and the use of the safety-lamp, though Dr. FREDERICK ROBSON[1] produced figures showing a correlation with the presence of a high percentage of gas in the mine. Both these correlations are capable of a unifying interpretation, for the miner is inevitably aware of the significance of the safety-lamp or the presence of gas. The word *safety* in this connexion hints at *danger*—it is the naked candle that indicates safety—and fear of the dangers of the miner's calling may well tend, as fear always does, to produce a psycho-neurosis. The miner's traditional courage in face of real danger provides no contradiction to this hypothesis, for it is not the expression of fear, but its suppression, that leads to the outbreak of symptoms. More difficult to reconcile with the hypothesis is the observation that the incidence of nystagmus declines when illumination is improved, the danger obviously remaining unchanged. Every psycho-neurosis has many determinants. Compensation is potent in increasing this disability, and this fact alone should arouse suspicion of affinities with what may be termed the compensation neuroses. But this suspicion must not lead to the assumption that stoppage of compensation will arrest the psycho-neurosis. There may be a pitfall in deductions drawn from the absence of nystagmus in other countries, for though "suggestion" cannot produce a psycho-neurosis it may determine a symptom, and we might find that nystagmus is replaced, in those countries where compensation is not given, by other manifestations the nature of which is unsuspected. That a psycho-neurosis is prevalent in particular circumstances is an indication that those circumstances are such that the ordinary man finds it difficult to adjust himself to them; and the mental and physical stress of a miner's life cannot be denied. Indeed, in this subject the psycho-pathologist would meet new problems at every turn, and Mr. INMAN's hypothesis is disquieting by the difficulties which it suggests.

As long as the inquiry was confined to a search for a physical cause there was hope of a definite and simple solution. Indeed, on the assumption, which is held by many distinguished authorities, that the main cause of true miners' nystagmus is defective lighting, considerable efforts have been made to remove at least one important factor in its causation. The complexity of the problem of miners' nystagmus is indefinitely increased if it must be investigated anew from the psychological aspect. Yet, if that aspect possesses the significance that Mr. INMAN suggests, there is every reason for the fullest inquiry, both on economic grounds and on account of the clinical importance of the principles involved.

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[1] THE LANCET, 1923, i., 961.

Annotations.

"Ne quid nimis."

STANDARDISED DRIED MILK.

THE Minister of Health has circulated to local authorities the regulations[1] in regard to the labelling and composition of dried milk which will come into operation on May 1st, 1924. These are in general similar to the regulations affecting the sale of condensed milk issued earlier in the year.[2] From the prescribed date no one will be allowed to offer for sale any dried milk intended for human consumption unless it conforms to a definite standard and is distinctly labelled to that effect. Milk described as dried full-cream milk must contain not less than 26 per cent. of milk fat, if described as three-quarter, half, or quarter-cream milk, not less than 20, 14, or 8 per cent. respectively of milk fat. Skimmed milk—that is to say, dried milk containing less than 8 per cent. of milk fat—must bear a label upon which is printed in bold letters the fact that the milk is unsuitable for feeding infants. The actual label in this case is as follows:—

DRIED MACHINE-SKIMMED MILK
[or DRIED SKIMMED MILK].
UNFIT FOR BABIES.
THIS TIN CONTAINS THE EQUIVALENT OF
(*a*) PINTS OF SKIMMED MILK.

Severe penalties are laid down for wilful neglect or refusal to carry out the regulations, and all those who are interested in child welfare will welcome these provisions as they did the provisions in regard to condensed milk. The purchaser of dried milk will obtain full information as to the value of the article bought, and it will be his own fault if he is misled or misinformed. We can only hope that the central health authority will continue its beneficent campaign against misleading descriptions of essential foodstuffs. The regulations will help the honest traders.

SEDIMENTATION OF ERYTHROCYTES IN NERVOUS DISEASE.

IT has long been known that the rate at which erythrocytes settle in a column of blood varies greatly, but it is largely owing to the recent investigations of the Swedes, Fahræus and Westergren, that this phenomenon has been exploited and made the principle of a delicately graduated test. It was found by Fahræus that in the healthy male the rate of sedimentation of the erythrocytes in a tube with a diameter of 1 cm. is about 3 mm. per hour, and in the healthy non-pregnant female it is about 5 mm. We recently called attention to the work of Dr. Mironesco, of Bucharest, on the sedimentation test as applied in certain acute infectious diseases.[3] In a paper published in *Paris Médical* for Sept. 29th by two other Bucharest physicians, Dr. Paulian E. M. Démètre and Dr. N. Tomovici, it is shown that this test is remarkably instructive in certain diseases of the central nervous system. The technique followed by the authors was perfectly simple. Into a 1 c.cm. syringe there was first aspirated 0·2 c.cm. of a 5 per cent. solution of sodium citrate, a vein was then punctured, and enough blood aspirated to fill the syringe. The citrated blood was then transferred to a tube with a diameter of 4 to 5 mm., and the extent to which the column of erythrocytes had sunk was recorded in millimetres every 15 minutes. It was found that in tabes the rate of sedimentation is greatly increased, particularly during the first quarter of an hour. As one of the published charts shows, the rate of sedimentation in a case of tabes was 12 mm. in the first quarter of an hour, 6 mm. in the second, and 2 mm. during the following half hour. The chart referred to indicates graphically the normal rate of sedimentation, the curve of which appears almost horizontal when compared with the abrupt fall of the curves of three cases of tabes. In the healthy male there was a fall of only 1 mm. during the first quarter of an hour, and the same rate of sedimentation was maintained throughout the test. In marked contrast to this straight and almost horizontal line was the tabes curve, which showed an abrupt fall, followed by a gradual flattening. In general paralysis the authors found a fall of 12 mm. in the first quarter of an hour and 4 mm. in the second. Still more interesting were their findings in cases of paraplegia due to various causes. When the paraplegia was not due to a specific disease the rate of sedimentation was slow and practically normal, but when the paraplegia was due to syphilis or to Pott's disease this rate was greatly increased. The curious observation was made that the rate of sedimentation is not the same in true Parkinson's disease (paralysis agitans) and in post-encephalitic Parkinsonism. In the former it is comparatively rapid, being 18 mm. in the first half hour. In the Parkinsonism following lethargic encephalitis the rate of sedimentation is only about 1 mm. every quarter of an hour. These findings suggest that the close clinical similarity of these two conditions is only superficial, and that their underlying causes are distinct.

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[1] Circular 452. Statutory Rules and Orders, 1923, No. 1323. H.M. Stationery Office.

[2] Standardised Condensed Milk, THE LANCET, 1923, i., 972.

[3] THE LANCET, Sept. 1st, p. 473.

THE "MILITARY SURGEON" AND ITS EDITOR.

THE October issue of the *Military Surgeon* announces the sudden death of its very able Editor, Colonel James Robb Church, after six years in office. Colonel Church was 57 years of age, having qualified in 1893 at the George Washington University Medical School and retiring from the United States Medical Service in 1917 with the rank of Colonel, to become Secretary-Treasurer of the Army Medical Museum at Washington. The journal which he edited is the official organ of the Association of Military Surgeons of the United States, and has recently completed its fiftieth volume. The *Military Surgeon* is packed with interesting information, and has for many years provided us with a critical review of army medical equipment as seen from a standpoint differing from our own. In the October number Surgeon E. R. Marshall, U.S. Public Health Service, tells what the United States are doing for their lepers, who are estimated at 1000 persons. Congress in 1917 provided sufficient funds to establish a national "leprosarium," and in 1921 the Louisiana State Leper Home at Carville, with 358 acres, was bought for the nation. At present it has 172 beds; plans have been prepared for 500, and, when these are achieved, Congress may make provision for 1000. Patients are received at their own request, but they can be apprehended, under the law, and detained. There is an unclimbable fence (with 12 strands of barbed wire) around the estate, and there are a farm and tennis-courts; mention is made of a player-piano, gramophone, and two moving-picture shows weekly (to which the patients have by subscription added a third); thus amused, they are almost contented in their isolation. Patients are treated with the ethyl esters of chaulmoogra oil and in some cases their condition is improved, the improvement reaching a maximum in six months. Great care is taken of the eyes of the lepers. A dentist found that 70 per cent. had pyorrhœa, and 17 per cent., after serological examination had been made, proved to be also affected with syphilis. Major M. A. Reasoner, Medical Corps, U.S. Army, who has done duty with the U.S. troops in Coblentz, reports on an observation trip in Germany, Denmark, and England, made in spring this year. He comments on the open sale of contraceptives in London, and states that "the present economic conditions are so bad, and there is so much unemployment and such a lack of housing facilities, that it serves to some extent as an excuse. Unfortunately for the good of the country, it gets the people into bad habits, and if this keeps up, they bid fair to rival the French." He adds, one regrets to see, "In no place in Europe have I seen so many bleary-eyed, besotted wrecks of humanity as in London." He is pleased with the work of the hospitals in Germany, especially the pathological work, but finds them financially in a bad way. Yet he thinks Germany is doing better work in chest and abdominal surgery than across the Atlantic, although in every other way the United States surgeons are ahead. With Denmark he is very pleased: "Standards in medicine and surgery are unusually high"; "the best equipped laboratory I have ever seen" is that of the National Serum Institute at Copenhagen, and the hospitals "do not seem to suffer the want of anything." Lieut.-Colonel A. P. Francine, Medical Officers' Reserve Corps, U.S. Army, argues that mustard gas was a disabling, not a destructive weapon, and in fact much more humane than shot and shell; it left little subsequent permanent damage.

ANGINA AGRANULOCYTOTICA.

UNDER this title Dr. Friedemann,[1] director of the Infectious Diseases Department of the Rudolf Virchow Hospital, Berlin, who records four fatal cases in women aged from 22 to 57, describes a form of gangrenous angina accompanied by high fever and characterised by a complete or almost complete absence of the neutrophil leucocytes in the blood, while the other elements of the bone marrow, especially the blood-platelets, are present in normal numbers. All the cases hitherto observed have proved fatal in two or three weeks' time. Soon after the onset of the disease sore-throat develops, and a severe angina occurs which at first closely resembles diphtheria, but with progressive destruction of the tonsils assumes the appearance of necrotic angina. The characteristic feature of the disease, however, is the blood picture. The leucocytes are present in extremely small numbers, in some cases less than 1000 per c.mm. The results of a differential count are more striking still, as the leucocytes are found to consist almost entirely of lymphocytes, and the neutrophil polymorphonuclears are entirely absent, or only a very few can be found after a prolonged search, while the other elements of the bone marrow are present in normal quantity. This isolated absence of the neutrophil polymorphonuclear leucocytes has not hitherto been described in any other disease. The autopsy findings are not characteristic. The absence of any myeloid changes in the spleen, liver, and bone marrow is remarkable. Nothing definite can be said as to the ætiology of the disease. Nothing characteristic is seen in smears from the tonsils, spirochætes or spirilla being absent in all cases. The blood cultures were negative in three cases, and in another three cases fairly abundant colonies of *B. pyocyaneus* were found, but this organism was probably not the cause, but only a secondary invader. The pathogeny also requires elucidation, as it remains to be seen whether the change in the blood picture is the result of the angina or whether the angina develops with a pre-existing agranulocytosis. The diagnosis is difficult at first, owing to the resemblance to severe diphtheria, but the commencing necrosis of the tonsils should suggest angina agranulocytotica. A diagnosis is not possible from the clinical appearances alone, as these are very similar in streptococcal angina necrotica, severe specific angina, and the angina in leukæmia and other blood conditions. The blood picture alone is decisive. The prognosis, according to the cases reported by W. Schulz and Friedemann, is very bad, but it is an old experience that in a newly discovered disease it is only the severest cases that are seen at first, while the milder forms escape recognition. Further observations will show whether the disease has really such an unfavourable course as it appears to have at present. It is impossible to say now whether angina agranulocytotica is actually so rare as might be supposed from the few cases published, for it is possible that many of the cases described as malignant diphtheria with negative cultures were really examples of this disease.

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[1] Medizinische Klinik, Oct. 14th, 1923.

"SCHOOLS IN THE SUN."

FOR a long time past schools in the sun have been available in the summer for many groups of continental children. During last summer the opportunity arose in connexion with Stowey House open-air school for delicate children under the London County Council. Only one class was started and the experiment was tried under a sympathetic headmaster and with frequent visits from the school doctor. The summer did not prove very favourable for such an experiment; May and June were overcast, July was better, but in August, when insolation was good, the school was closed. In spite of this drawback and the fact that the school was in London the results have been very encouraging, and the headmaster has been pleased with the outcome both from the mental and the physical side. The boys themselves showed great keenness, and no difficulty was found in obtaining the coöperation of the parents. Other classes, indeed, were anxious to be allowed to join in, and a further trial will be made next year. We learn also that sun treatment has been carefully carried out during last summer under the supervision of Sir Henry Gauvain at King George's Sanatorium, Bramshott, where there are a number of sailors of various nationalities suffering from surgical tuberculosis. Here also the results were satisfactory, and the men were keen to avail themselves of the treatment right on into the autumn. While undergoing sun treatment the patients are encouraged to undertake manual work, basket-making, and the like. The monotony of long-enforced recumbency is thereby alleviated, the patients are happier and more contented; discipline is improved. The combination of heliotherapy, aerotherapy, and occupation has proved of great value in the treatment of these adults, and the contrast between the appearance of these patients and similar cases for whom such advantages are unobtainable is striking.

EXPERIMENTS ON PLAIN MUSCLE IN VITRO.

USING various types of plain muscle—e.g., uterus and intestine of the cat, guinea-pig, and rabbit, the sphincter of the iris of the cat, and the retractor penis of the dog—and suspending them at 38° C. in an appropriate saline, whose hydrogen-ion content could be varied, Prof. C. Lovatt Evans and S. W. F. Underhill[1] have been able to study the movements of the excised surviving organs under varying conditions of hydrogen-ion concentration. Since oxygen or other gas bubbles through the surrounding fluid, attention must be paid to the fact that plain muscle is extremely sensitive to mechanical stimuli. It was found that the effect of increase of hydrogen-ion concentration, within limits compatible with life, is to cause relaxation of the tone of plain muscle. Rhythmical contractions, such as those of the small intestine, are slowed and depressed in extent on the acid side of neutrality, and quickened and depressed when the reaction becomes decidedly alkaline. Excessive acidification leads to death in a relaxed state. In muscle preparations devoid of tonus increase of hydrogen ions has no effect. These effects are independent of action on local nervous mechanisms. When the preparation is immersed in a definitely alkaline bath of phosphate solution (pH 8 or more), addition of acid oftens produces an increase of tonus or a large contraction. This effect, well seen with the guinea-pig uterus, is believed to be due to alteration in the ionic calcium content of the fluid, and not directly to the hydrogen-ion concentration. The experiments also show that the mechanism of contraction and tonus in plain muscle is different from that in striated muscle. In the same issue of the journal Prof. Lovatt Evans records also some interesting observations on oxygen consumption in the tissues. The surviving uterus and the small intestine of various animals—the mucosa was in some cases left intact, in others removed—were used in two different methods, and both gave similar results. When in tonus the muscle uses less oxygen than when relaxed; this is because the surface of the fibres is reduced. After a period of oxygen lack, the oxygen consumption is increased. A higher temperature, within physiological limits, increases the oxygen usage; the maximum is reached at 43° C. The temperature coefficients at different ranges of temperature are not the same, but as in other instances show a diminution with rise of temperature. In view of the fact that cyanides check the oxygen usage of tissues generally, small additions of sodium cyanide were tried. Cyanides depress, but apparently do not abolish, the oxygen usage of the tissue.

DIURNAL INCONTINENCE IN WOMEN.

THAT incontinence of urine is one of the most distressing afflictions which occur in women who have borne children is generally conceded. Minor degrees of this uncomfortable symptom are very common in women over 40 years of age, especially when some effort is made which produces sudden abdominal strain, such as coughing or sneezing. Attention has recently been directed to this subject in various papers, more expecially in communications by Prof. B. P. Watson, of Edinburgh, at the British Congress of Obstetrics and Gynæcology, and by Mr. Victor Bonney at the Royal Society of Medicine. The most recent contribution is that of Mr. F. H. Seymour before the Brighton and Sussex Medico-Chirurgical Society, in which he expresses surprise that British gynæcology has paid so little attention to this condition. That may be true of published work, but we feel sure that most gynæcologists are aware of the inconvenience caused to women by this symptom, and even if advice is not directly sought on this point the question is commonly put in the out-patient department and the consulting-room. Mr. Bonney has, however, very rightly drawn attention to the importance in the diagnosis between urethrocele and cystocele. Treatment directed towards relief of the latter will not cure incontinence commonly associated with the former. A point emphasised both by Mr. Bonney and Mr. Seymour is that the causation of incontinence in parous women in many cases is in no way connected with genital prolapse, but is due rather to a very typical displacement of the urethra. In these patients the urethra, on expulsive efforts such as coughing, wheels round the subpubic angle with the result that for a brief moment it looks forwards and upwards. It is at this moment that the incontinence occurs. The causative factor appears to be relaxation of the "pubo-cervical muscle sheet" which normally supports the female bladder, and more particularly the anterior third of this sheet. An interesting observation is that incontinence of this type is more likely to occur when the bladder contains very little urine than when the organ is full. The dilatability of the vesical sphincter in women is, of course, well known, for comparatively large calculi have been removed per urethram without any subsequent incontinence. Should the symptom, however, occur as a result of laceration and trauma of the sphincter through the extraction of large calculi, the dribbling of the urine is continuous and, we think, in the opinion of most surgeons difficult to rectify. The spasmodic incontinence noted by Mr Bonney and Mr. Seymour is, on the other hand, relieved in the majority of cases by a plastic operation designed to reinforce the unstriped muscle fibres beneath the urethra by means of buried unabsorbable sutures. In the technique described by Mr. Bonney the urethra is exposed by a vertical incision through the anterior vaginal wall and the sutures are introduced transversely. Should a cystocele be present, this simple operation is combined with an anterior colpoplasty. No pessary apparently suffices to cure incontinence of this type.

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[1] Journal of Physiology, vol. lviii., No. 1.

OXYGEN STORAGE AND TRANSPORT.

THE use of oxygen in medicine, although comparatively infrequent, is of high importance, chiefly for the reason that when it is needed it serves a purpose which cannot be met by any substitute. To make our meaning clear, we need only refer to its employment in conjunction with anæsthetics and to its use in extreme conditions of pulmonary insufficiency. The work done by the Oxygen Research Committee and the report[1] which they have recently issued are, therefore, of especial interest to medical men. The fundamental problem before the Committee was to try to furnish, especially for aeronautical, medical, and other scientific purposes, more ready means than those existing for the utilisation of oxygen. In the view of the Committee, and our readers will share it, there is urgent need, for use in hospitals and for other special purposes, of cylinders even lighter than those which were recommended by the Gas Cylinders Committee. It will be remembered that in 1921 this Committee recommended and specified lighter cylinders for trade use. The Research Committee has been principally concerned with the possibility of increasing the use of oxygen in its liquid form. The difficulties of economic production on a commercial scale are great and are not dealt with in this report. A great part of the report deals with double-walled metal vacuum vessels, the chief vehicle for transport of liquefied oxygen or air. A number of experiments and of highly complicated physical investigations bear witness to the labours of the Committee. These do not, however, much concern the medical practitioner; he will be more interested in the question of the price of oxygen, which, as the Committee state, at present "restricts its use for medical purposes to quantities much below those in which it could usefully be employed." Unfortunately the Committee declare themselves unable to express any opinion as to the possibility of reduction in the present cost of oxygen.

PERI-ARTERIAL SYMPATHECTOMY.

THIS operation has been hailed as one of the most important advances in modern surgery; it formed an extremely interesting demonstration at the Zurich Surgical Clinic during a recent visit from British surgeons. Recent accounts, however, suggest that the hopes entertained are not being fulfilled. Leriche, with whose name this operation has been associated, has pointed out that the notoriously refractory behaviour of certain ulcers and other lesions is due to vasomotor-trophic disturbances, and that a scar or other morbid condition in the periphery may start a reflex travelling to the central nervous system through the peri-arterial network of sympathetic nerves to be found in the outer coat of the large arteries to the limbs. By the simple expedient of removing a circular strip of the outer coat of these arteries he anticipated that a break could be made in this injurious reflex, the vaso-constrictor action being abolished, and more favourable conditions for nutrition being restored to the parts concerned by the local vaso-dilatation and hyperæmia supposed to follow this operation. Most physiologists believe that the vaso-constrictors belong to the sympathetic system, but run only to a certain extent in the peri-arterial network, some following the course of the spinal nerves. The vaso-dilators, on the other hand, run only with these spinal nerves. Other physiologists, however, believe that all the vaso-constrictor nerves, as well as all the vaso-dilator nerves, run with the spinal nerves, that the nerve supply of the large blood-vessels is strictly segmental, and that the sympathetic nerves do not run continuously with the large arteries to the periphery. It is obvious that so long as these fundamental matters are in doubt, the rationale of peri-arterial sympathectomy must be "in the air." As for the clinical results obtained from this operation, it would seem from a recent communication[1] by Dr. Klug to the *Naturhistorisch-medizinischer Verein*, in Heidelberg, that they are very modest. His own experience of 16 cases operated on at Enderlen's hospital has not been favourable, although great care was exercised in the selection of cases and the technique of the operation was sedulously correct. In every case temporary hyperæmia of the parts distal to the field of operation did, indeed, occur after the operation, but the former state of affairs soon recurred. Observation of the peripheral blood-vessels with the capillary microscope also suggested that the beneficial effects of this operation were only transitory, and tests with adrenalin and other substances failed to show any essential differences between the limb operated on and its fellow. It is evident that the Leriche operation is at present under a cloud, and it would have been better if its physiological foundations had been securely established before it was passed on to the clinician. But as a stimulus to physiological research in this field the operation may, after all, have served a useful purpose.

INFLUENCE OF DIET ON INTESTINAL FLORA.

THE cry of "intestinal infection" having become almost a slogan of a certain school of clinicians and bacteriologists, Prof. L. S. Dudgeon was wise to point out in his presidential address to the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine that this term is sometimes employed without clear understanding as to its significance. The presence of abnormal bacteriological findings in the fæces is not evidence of intestinal infection, because in the healthy subject the most efficient means for the discharge of bacteria is by the fæces. Harvey Cushing and Louis Livingood[2] many years ago classified the intestinal flora into (1) permanent or obligatory intestinal bacteria, (2) transient or facultative forms. They considered that the members of the first group are invariably present, while in the case of the second group the bacteria appear only after they are introduced with food or by similar means. These transient bacteria do not find in the presence of the permanent flora cultural conditions which favour their perpetuation, unless they encounter or produce a pathological lesion of the mucosa. The obligatory forms, in their opinion, are also dependent to some degree upon dietetic influences. During recent years, the bacteriological methods employed for the study of the intestinal flora have been considerably modified and elaborated. Results based on such methods of investigation, however, are open to countless fallacies unless the influence of the following factors is fully appreciated: (1) The patient's diet, and the length of time such diet has been in force; (2) the condition of the mouth and throat as to the presence of pyorrhœa, or other inflammatory lesions; (3) the presence of a pathological process in the intestinal or respiratory tract; (4) whether there is diarrhœa, constipation, or normal action; (5) the influence of purgatives; (6) the time interval between the collection of the specimen from the patient and the bacteriological examination; (7) whether contamination of the specimen of fæces with urine, or from unclean vessels, or exposure to atmospheric conditions, especially in the tropics, has occurred.

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[1] Department of Scientific and Industrial Research. H.M. Stationery Office. 8*s*. 6*d*.

[1] Deutsche med. Wochenschrift, Sept. 28th, 1923.

[2] Johns Hopkins Hospital Report, vol. ix.

It is largely due to the lack of knowledge of the bacterial flora of the intestinal tract in man, under normal and abnormal conditions, and of the numerous circumstances which influence the flora, more especially dietetics, that common errors are so often repeated and inaccurate deductions made. To quote but one example, it is not an uncommon occurrence for a patient, whose diet consists of cow's milk, to be treated with a streptococcal vaccine made from the fæces. G. B. Morris, R. L. Porter, and K. F. Meyer [2] lay stress on the fact that the fæcal flora of a child fed on cow's milk, although not suffering from any intestinal disturbance, or symptoms of intoxication, may resemble the putrefactive stool, due to direct milk contamination. As a result of elaborate investigations, these authors considered it to be an established fact that the microbic flora of the intestinal canal is in direct relationship to the diet of the host, and that the absence of carbohydrates in a diet produces a predominance of proteolytic bacteria, resulting in putrefactive stools and symptoms of intoxication from intestinal absorption. In adults the importance of chronic intestinal putrefaction has led to various methods of treatment being employed, such as vaccine therapy, intestinal antiseptics, removal of the colon, and the one-time popular remedy of implanting antagonistic organisms, such as *B. bulgaricus*. P. R. Cannon [3] points out, however, that observations have shown how impossible it is to implant *B. bulgaricus* in the intestinal tract, since the organism is apparently not an inhabitant of the normal intestine and cannot adapt itself to its new environment. Cannon's observations agree with those of other observers who claim that the reduction of intestinal putrefaction can be effected by the substitution of carbohydrates in the diet for proteins. The controlling force of the intestinal bacteria in the normal intestine is the food which is consumed. Prof. Dudgeon fully endorsed a statement by Torrey [4] that milk and a high casein diet stimulate a vigorous growth of saprophytic streptococci and enterococci. It would be well for this fact to be more fully appreciated by those who make use of streptococcal vaccines prepared from the fæces.

THE LIMITATIONS OF AVAILABLE INFORMATION ON CLIMATOLOGY.

A DETAILED account of British climatology is being prepared by the Meteorological Office of the Air Ministry. Section IV. of this work, which has appeared,[5] consists of two parts: (A) Range of Variation of Temperature and Rainfall; and (B) Frequency Tables for Hail, Thunder, Snow, Snow-lying, and Ground Frost. The information covers varying periods terminating with the year 1921 and concerns 30 selected places ranging from the Shetland Islands to Scilly, from Dublin to Yarmouth. The range of information given in (A) with regard to any special places is wide. We are told, for example, the highest temperature reached on a normal day in, say, January; in which January, over a term of years, were there (*a*) the hottest, (*b*) the coldest days on the average; what was the lowest temperature reached in the normal January night; in which January were the nights (*a*) warmest, (*b*) coldest; what January was (*a*) the warmest, (*b*) the coldest on the whole, and what was (*a*) the highest, (*b*) the lowest temperature recorded in January since 1876. Similar information is given with regard to the rainfall. In (B) we find details concerning the highest number of days for each calendar month, with snow, hail, and thunder; also the frequency of winters (1881–1915) with no snow, with 1–10 days snow, with 11–20 days snow, and so on. On this mass of detail in the contents, which may well prove of interest to holiday-makers, agriculturists, and invalids, some comments may be made from the medical standpoint. It must nowadays be admitted that thermometric readings alone are quite inadequate as a guide to the effects of atmospheric conditions upon the human body. A doctor would be unable to advise a patient correctly as to a suitable residence as regards sensations of heat and cold unless he knew as much about the prevailing winds as about the temperature of resorts. Temperature is only one of the important factors concerned, movement of air being equally, if not more, important. The ordinary thermometer being unaffected by wind, is quite unable to indicate the changes of sensation produced by movement of air, and though indoor conditions may be indicated fairly by its readings a kata-thermometer which is affected by both temperature and wind is needed for the estimation of outdoor conditions. While the kata-thermometer directly estimates the cooling power this may also be calculated indirectly from the velocity of the wind and the dry bulb temperature. From information already collected it is probable that cooling powers could be worked out. At any rate kata-thermometer cooling powers should also be estimated in the future, and in this way information of real value to doctors and invalids may be forthcoming; a suitable self-recording kata-thermometer (Schuster's) is now obtainable. It is well known that, in industry, the wet-bulb temperature is a better guide to comfort than the dry-bulb. Again, at low temperatures moisture of the air increases the sensation of chilliness. A doctor must then know at least the wet-bulb temperature, and the cooling power before his advice may be of much value to a patient. The ideal volume for the doctor would contain the hours of sunshine, the dry-bulb temperature, the wet-bulb temperature, the cooling power and the velocity of the wind.

EPIDEMIC DIAPHRAGMATIC PARALYSIS.

Dr. G. C. Payne, epidemiologist of the Virginia Board of Health, and Dr. C. Armstrong,[1] of the United States Public Health Service, describe an epidemic of transient diaphragmatic spasm, which occurred mainly in the north-eastern part of Virginia during the summer of 1923. In practically all the areas affected the epidemic began in July, but there were a few cases in May and June. The infection appeared to be spread through families by contact. Among 17 families studied by the writers there were five cases in one, four cases in one, and three cases in two others. Children were somewhat more frequently attacked than adults. Of 27 cases under the writers' observation 15 were less than 20 years of age, and 8 were not yet 10. The epidemic was strictly confined to rural communities. Prodromal symptoms were usually absent, and the attack nearly always began suddenly with severe epigastric pain, which later extended to one or both sides of the lower part of the thorax. Respiration was very difficult, the rate in some cases being 60 a minute. The temperature rose in nearly all cases at the onset, and soon reached the maximum, which ranged from 101° to 105° F. The pain was intermittent, was most severe at the onset or soon after, and was increased by active movements of the body. Profuse perspiration was the rule. Nausea and vomiting occurred in about one-third of the cases. Constipation was the rule. More than half the patients complained of headache, and a few of pain in the extremities or in the lumbar vertebræ. After about ten hours of severe paroxysms and dyspnœa the patient became more comfortable and the temperature fell, but sometimes it rose again, and some patients complained of weakness and slight fever for from one to three weeks after the onset. In some cases there was no return of the pain and dyspnœa, while in others the initial symptoms recurred with decreased severity after an interval of 24 hours or more. Blood counts, which were made in 11 cases, showed no definite increase in the total number of leucocytes. The polymorphonuclears ranged from 25 to 76 per cent. In six cases the eosinophil percentage was greater than 5, the maximum being 13. The sequelæ noted were streptococcus empyema, dysentery, otitis, and endocarditis. The writers regard the outbreak as due to an infection the nature of which has not been determined. A similar epidemic which occurred in Virginia in June, 1888, was described by Dabney, who emphasised its resemblance to dengue, but regarded it as a distinct entity.

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[2] Journal of Infectious Diseases, xxv., 349–377.

[3] Loc. cit., xxix., 369–385.

[4] Jour. Med. Research, xxxix., 415.

[5] The Book of Normals of Meteorological Elements for the British Isles, for Periods ending 1915, Section IV. Meteorological Office, Air Ministry, pp. 153–220. 1923. 3*s.* 6*d.*

[1] Journal of the American Medical Association, Sept. 1st, 1923.

ITCHING AND TICKLING.

Prof. M. v. Frey, of Würzburg, has published[1] some new and interesting observations on the physiology of tickling and itching and the relation between the sensations of tickling and those of contact and pressure. These experiments show that the sensation of superficial tickling, that form which is discharged from the skin, is determined by the nerves of the pressure sense, while that of itching is due to the superficially placed nerves which administer to painful sensations. An appropriate method whereby the sensation of tickling may be induced by cutaneous stimuli is to draw a pig's bristle, 5 cm. in length, along the skin of the forearm at the rate of 1 cm. per second and exercising a pressure of about half a gramme in so doing. To excite the sensation of itching press a pointed bristle on the skin and maintain the pressure on one and the same spot, using a pressure of about half a gramme. The two sensations are quite distinct, as shown by the fact that the effective stimuli so far as they are of a mechanical nature have a different liminal intensity or threshold value. The mechanical stimulus exciting the sensation of itching cannot be diminished much under half a gramme, if it is to be effective, while sensation of tickling can be induced when the pressure is reduced even to one-twentieth of a gramme. The tickling sensation, such as is produced by the bending of a hair or deformation in the region of a pressure spot, rapidly fades or subsides, a phenomenon characteristic of the terminations of pressure nerves. To maintain the sensation of tickling, the stimulus must be carried along the skin. For itching, however, the stimulus must be maintained at one and the same spot and the sensation once induced remains for a long time at the affected spot. Moreover, the reaction time for tickling is very constant and is about 0·15 second, while the corresponding time for itching varies with the spot stimulated and is relatively long, being seldom less than one second, and may be even seven times longer than that for tickling. Different also are the after duration and the reflexes associated with the two sensations. The itching sensation in general outlasts the duration of the stimulus, which can hardly be said of tickling excited by weak stimuli. The reflex associated with itching is the scratch reflex, that with tickling is shuddering or even shivering, and not laughter as is so generally assumed. The correspondence between the threshold stimulus for tickling and contact, the difference in the threshold between surfaces provided with hairs or hairless parts, and the marked increase of the threshold value after removal of the hairs—the increase may be tenfold—also serve to strengthen the contrast. If the pain nerves present in the epidermis be paralysed by cataphoresis, it can be shown that tickling is not due to excitation of these nerves, for the sensation can be evoked after they are paralysed. In spite of the distinctive characters of the two sensations, confusion and admixture are not infrequent, and long-continued titillation may give rise to results which are very complex and may be associated with the sensation of itching. There is a close relation between the sensation of tickling and that of contact, and both are readily elicited by touching the hairs; both are very fugitive when the stimulus remains applied. Both sensations tend to extend beyond the spot stimulated, and both lead to reflex vascular effects. The physiological effects in both processes are not essentially different, and the psychological effect is chiefly dependent on the direction of the attention to the phenomena. If this is directed to the external stimulus, the sensation of contact arises, but if to the part tickled, the sensation of tickling arises. The author comes to the conclusion that the sensations of contact, pressure, and tickling are modifications of one modality and are not due to qualitatively different receptors.

DUODENAL FEEDING.

Prof. Max Einhorn,[1] of New York, reports satisfactory results on 11 cases of gastric and duodenal ulcers treated with duodenal feeding, by means of a duodenal tube. He only includes those cases in which a definite and persistent deformity of the stomach in the shape of a notch at the site of the lesion was demonstrated by the X rays. The patient was fed through a duodenal tube for two to three weeks, at the end of which time the notch was found to have either completely disappeared or to have considerably diminished in size, while the patients expressed themselves as feeling well. In Prof. Einhorn's opinion, these cases should be given a chance of healing by his method before they are subjected to operation, although he admits that there are some cases in which there is good ground to justify immediate operation. We should like to have further reports of his cases, after a prolonged period of observation, to ascertain whether they tend to relapse, as it is well known that most gastric ulcers show signs of periodic activity, with free intervals between the attacks. We also feel that there may be grave danger of missing an early carcinoma in subjecting all cases to medical treatment, when X rays show a definite deformity.

AN UNFORTUNATE ERROR.

A MISCONCEPTION has arisen under which, we are informed, medical women have been told that they were not expected at THE LANCET Centenary Dinner at the Hotel Victoria on Nov. 29th. This is an entire mistake. Any member of the medical profession can be present at the dinner, and already many medical women have signified their intention of being present.

THE veteran Pridgin Teale died at his residence, Headingley, Leeds, on Tuesday last, at the advanced age of 92.

WE regret to announce the death, in his eighty-fourth year, of Emeritus Professor D. W. Finlay, late of Aberdeen University, at Helensburgh, Dumbartonshire, on Nov. 4th.

SMALL-POX IN ENGLAND AND WALES.—During the week ended Nov. 3rd, 35 new cases of small-pox were reported in England and Wales from the following areas: Derbyshire 3 (Chesterfield 2, Shardlow R.D. 1); Durham 2 (Gateshead 1, Southwick-on-Wear 1); Gloucestershire 7 (Gloucester 6, "including 2 cases of chicken-pox re-diagnosed as small-pox," East Dean 1); Notts 16 (Hucknall 15, Basford R.D. 1); Yorks West Riding 7 (Adwick-le-Street).

MANCHESTER HOSPITAL FUND.—During the last year over £73,000 was subscribed by three-quarters of a million contributors, a capital sum sufficient to enable 13 Manchester and Salford hospitals to be left free of debt. The Duke and Duchess of York made a special visit to the city to receive and hand over to the Hospital Fund this large cheque. The Duke congratulated the Lord Mayor on the inception of a scheme so successful, which would go far to prevent curtailment of the work in the wide field covered by the hospitals of Manchester and Salford.

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[1] Zeitschr. f. Biol., vol. lxxviii.; and Skand. Arch. f. Physiolog., vol. xliii., 1923.

[1] Deutsche med. Wochenschrift, Oct. 26th, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLV.

THE TREATMENT OF CŒLIAC DISEASE.

THE modern treatment of cœliac disease, although not apparently curative, is very successful. It is able to change a perpetually ailing, fretful, and unattractive child into one who is free of all symptoms, happy and ovable. There are few more grateful women than the mothers of the severer cœliac cases which have been recognised and treated. Yet, although the disorder has been known for more than 30 years and is by no means uncommon, much unnecessary suffering is frequently caused by its passing undiagnosed.

Recognition of Cœliac Disease.

The essence of the disorder is a failure properly to absorb the fat of the food. Although apparently efficiently split by the pancreatic juice, a large excess of the dietetic fat remains unabsorbed. On this disability rest all the other symptoms. The cardinal features of the disease are: (1) excess of fat in the stools; (2) enlargement of the abdomen without signs of organic disease; (3) retardation of physical growth and development; (4) anorexia, often of the severest grade; (5) fever, either low and persistent or high and transient. Less common complications are tetany, convulsions, "alimentary" œdema, and, I think, megalocolon with visible peristalsis. "Late" rickets s rare.

Course of Disease.—It is not yet possible to say when the disorder begins and ends, for we find that even in the absence of symptoms fat-absorption remains below the normal. But the times of the onset and termination of symptoms are known. Occasionally the first symptoms, the passage of colourless stools, will appear quite suddenly towards the end of the first year of life, usually in association with teething; but more commonly pale diarrhœa (*diarrhœa alba*) is seen for the first time towards the end of the second year. From this time onward, n the absence of treatment, the symptoms already enumerated will be seen for many years. Towards the later years (10 or 12) of childhood, even in the absence of treatment, some improvement in fat-absorption seems to occur, but in the most quiescent stages analysis of the stools will show that a normal condition has not been reached. The lack of growth eads to considerable stunting and in severe cases to retarded sexual development (cœliac infantilism). Nevertheless growth continues for many years, and under treatment a normal average height is eventually reached. Whether in adult life fat-absorption ever becomes entirely normal I do not know, but certainly the patients are ultimately able to keep well on an ordinary diet. Except for attacks of severe diarrhœa n the early years, the disease is not dangerous to life; neither does it predispose towards tuberculosis.

Diarrhœic Type.—This is the common classical ype described by Gee in 1888. The characteristic feature is the *diarrhœa alba*, the stools being very large, unformed, pale, greasy, and extremely offensive. In frequency they vary from 2 or 3 up to 10 or 12 daily during bouts of diarrhœa. On analysis they show a great excess of fat, the dried stool containing 30–80 per cent. of fat. In these pale stools the bulk of the fat is passed as fatty acid crystals; bile-pigment is not absent from the stools, but it is masked by the excess of fatty acids. In this type of the disease the other symptoms are severe and the stunting of growth most noticeable. Mentally the children are in no way deficient, but are usually neurotic, hysterical, ntrospective, negative, and "difficult." It is noteworthy that even in this severe form it is seldom recognised at home that it is the fats of the diet which disagree. Mothers think in terms of pastry, cream, green apples, and so on, rather than in those of protein, fat, and carbohydrate. Occasionally, however, one is told that cod-liver oil, with which the children are often liberally dosed in quiescent intervals, "does not seem to suit."

Non-diarrhœic Type.[1]—This is the same condition in milder form. It is much less easily recognised than the former type. A case may conform to this type throughout its course, but it is chiefly seen in the quiescent or convalescent stages of the classical type. It differs from the diarrhœic type in two particulars: (1) The stool, although larger than normal, is neither pale nor unformed nor offensive; it is formed and coloured, and may be dark, hard, and constipated. Yet it contains a considerable excess of fat (30–50 per cent.), but the bulk of the fat, instead of being in the form of fatty acid which masks the bile-pigment, is present in the form of soap which takes up the colour. (2) The symptoms of abdominal enlargement, lack of growth, anorexia, &c., are milder than in the diarrhœic type or stages.

Management of the Case.

General Scheme.—The principle of the treatment is to work out a diet containing the optimum amount of fat—that is to say, one on which there will be satisfactory growth and a complete absence of symptoms. As this will certainly contain less fat than an ordinary diet, parents should be warned that the child is not being starved and that extra fat, if given, may lead to loss of appetite or worse upsets. As the child improves on the low-fat diet, the growth of its appetite will enable more food to be given; this should be supplied in the form of extra non-fatty proteins.

Fatty Foods.—The chief foods in a child's diet which are rich in fat are milk, butter, dripping, cream, meat-fat, gravies, milk and suet puddings. Many preparations prescribed for children contain much fat—for example, cod-liver oil preparations, virol, &c. Liquid paraffin appears in the stools as neutral (unchanged) fat.

Detailed Treatment.—Leaving until later cases first seen when in an attack of severe diarrhœa, the treatment of the ordinary chronic case may be undertaken in the following stages:—

1. Before starting treatment note the amount of fatty food in the diet, the characters of the stool, and symptoms. If possible have an analysis made of the stool for fat before altering the diet. These points serve to give a rough standard of a diet too fatty for the particular case. The child should be weighed every week or so, and particularly before any alteration in the diet. Its height should be measured every three months. The mother should keep notes of these points and of the diet ordered and its alterations.

2. Change the diet abruptly on to one low in fat. The following dietary may be used as a start. For very young children it will probably be rather too rich in fat; for older cases it may be unduly strict.

Breakfast.—Plasmon cornflour made with skimmed milk; fish, egg, lean tongue; toast or bread; no butter; syrup, jelly, jam; cup of skimmed milk flavoured with Schweitzer's cocoatina or tea, sugar. 11 A.M. (if desired) bovril made with water, rusk or dry biscuit.

Dinner.—Fish; lean meat, chicken, rabbit; bovril in water to replace gravy; potato and second vegetable without sauce. Pudding; jellies, stewed fruit, rice boiled in water, sponge-cake puddings; alternate or every third day, plasmon puddings or milk puddings made with skimmed milk, or steamed pudding containing a trace of butter. Fruit, except bananas and nuts. Drink: water.

Tea.—Bread, rusks or dry biscuit with syrup, jelly, or jam; no butter: sponge-fingers; a little lettuce or watercress: meringues (cases only); tea or cocoatina made with skimmed milk: home-made buns or cakes containing a minimum of butter.

Supper.—Sponge-fingers, sandwiches of raw meat pulp, of watercress, of tongue, or tomato; plasmon pudding made with skimmed milk. Drink: skimmed milk with or without plasmon, or cocoatina or bovril.

Note.—(1) Skimmed milk. Unless machine-skimmed milk can be bought the skimming should be done by heating the milk at 200° F. for 20 minutes and then setting aside for three hours. All the cream can then be carefully removed. Done properly the milk should have a blue look and contain under 1 per cent. of fat. A desiccated skimmed milk (Lyons's "Kookal") may be used for emergencies. (2) Plasmon is a powder made of casein in a soluble form. It is stated to contain only 0·7 per cent. of fat. Plasmon arrowroot, blanc-mange, cornflour, and custard powders are said to contain no added fat; the plasmon cocoa, chocolate, and biscuits contain added fat and are unsuitable. Plasmon oats contain a large percentage of plasmon, but porridge is seldom suitable for cœliac cases. (3) Schweitzer's cocoatina is advertised as being fat-free. Ordinary cocoas, of course, contain fat.

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[1] THE LANCET, 1923, i., 72.

3. When the child has been on this diet for two or three weeks reconsider the position. If the diet is correct the stools should have become normal in size, the abdomen smaller (but not normal), the colon no longer distended with gas, the tongue clean, and, most important of all, the appetite keener. The rule at this stage, as at others in the treatment, is to reduce the fats sufficiently to get the child hungry and eating well. Finally, an analysis of the fæces will show that the percentage of fat in them has dropped, probably to between 20 and 30 per cent. This figure, which usually means that the child is safe from any recrudescence of active symptoms, is diagnostic of the disease; on such a low-fat diet the percentage should be far lower.

4. When the appetite has improved increase the non-fatty protein in the dietary. Now the child should begin to increase in weight and height, and such a diet may be kept on for months; indeed, it forms the basis of the diet for years.

5. When the child is thoroughly stable and doing well, experimental tests of giving more fat may be made. These must not be hurried and must be most carefully watched. A little extra fat may be tried every third day; the most welcome relaxation is "scrapes" of butter, or anchovy-paste or potted meat for breakfast. Other tests may be easily planned. It must be remembered that many of these children are extraordinarily sensitive to fat, one meal containing too much fat, as, for instance, a greasy gravy, is quite enough to upset them. Also, it by no means follows that what a child can take every third day can be tolerated daily. The signs of disagreement will be distension of the colon, coated tongue, loss of appetite, irritability, and perhaps a foul stool.

6. *Drugs.*—An alkaline mixture, such as rhubarb and soda, with or without bromide, is very useful, and may be continued regularly. Bile salts are often of value, particularly in the diarrhœic cases. They lead to an increased absorption of fat, and so allow more fat to be given in the diet.[2] They should be given for periods at a time; I usually order them for alternate months so that their influence can be tested. They are best administered in the form of the "kapsols" as made by Allen and Hanburys, each gelatin capsule containing ½ gr. each of sodium taurocholate and glycocholate. One capsule, or in older children two, should be given after each meal with the alkaline mixture. I have never seen any harm come of their use.

For the stunting of the growth I have not found any benefit from the use of thyroid or pituitary extracts. Correct dieting is the remedy for stopped growth. This suggests that the lack of growth is not merely the effect of fat-deprivation, but is largely the result of the toxæmia produced by an excess of unabsorbed fat.

Acute Diarrhœic Attacks.—In this condition it is probable that the excess of fatty acid in the bowel has set up an enteritis. These attacks are chiefly seen in the youngest patients and should not occur under treatment. For them all fat must be cut out of the diet temporarily. Water should be given, then clear whey or plasmon in water until skimmed milk can be allowed. Bismuth and opium mixtures and colonic irrigation may be ordered.

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Special Articles.

SOME POINTS ON NEPHRITIS IN GENERAL PRACTICE.

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BY the use of modern facilities it may safely be said that the presence or absence of nephritis in any given subject can be ascertained with certainty; indeed, it is generally not a very difficult problem to determine with reasonable accuracy to what extent the renal tissue is damaged and what the probable prognosis is. All this necessitates the use of a laboratory and the carrying out of certain tests, some of which require technical knowledge and a great deal of time. On the other hand, the very simple procedure of estimating the urea of the urine after giving a dose of urea by the mouth—the so-called urea-concentration test—frequently affords all the information that is required. It is essential, however, that certain factors associated with this test should be clearly understood, otherwise the interpretation of the results obtained may be difficult and even misleading. In this respect the relation of blood-urea concentration to nephritis and other conditions is very important. Within the last few years much stress has been laid on the necessity for ascertaining the amount of urea in the blood in all cases of nephritis, but it is now clear that, in some patients, blood-urea alone may afford little or no clue to the condition of the kidneys.

Blood-urea and Nephritis.

The amount of urea found in the blood of the normal healthy individual on an average diet is generally given as 20 to 40 mg. per 100 c.cm. blood. In a general way, experience shows that the younger the individual the nearer does the value approach to 20 mg. per 100 c.cm., while in older subjects there is a tendency for the upper limit of 40 mg. per 100 c.cm. to be reached or exceeded. These figures are by no means very constant, especially in old people, and it is not uncommon to find a blood-urea of 60 mg. or even more per 100 c.cm. blood in an elderly person in whom the kidneys are apparently fairly normal for his age. Thus, the presence of a blood-urea of 60 mg. per 100 c.cm. in a young person of 18 or 20 would be very significant, while a similar concentration in a patient aged 70 might be of little or no importance. To be of value in clinical work the age of the patient must be taken into account when considering the value of a blood-urea concentration. The part played by diet in this connexion is so obvious as to need no further discussion. It should always be remembered that a renal lesion must be fairly extensive before it will result in a raised blood-urea, for it is common knowledge that the removal of one kidney, for instance, with the consequent reduction of renal tissue to one-half the normal, does not cause an increase in blood-urea. Probably, nearly three-quarters of the kidney substance must be thrown out of action before the defect is indicated by retention of nitrogenous products in the blood. From this it is obvious that examination of the blood affords little or no help in early stages of nephritis where the lesion is as yet a comparatively slight one. Indeed, it is possible to have a fairly severe attack of acute nephritis without any increase of blood-urea. When the blood-urea is very definitely raised as the result of a renal lesion, that lesion must be a severe one, and a high blood-urea in such cases really indicates that the greater part of the renal tissue is either temporarily or permanently out of action. In mild cases of nephritis, estimation of blood-urea is therefore of little value, for it may be within the normal range or even lower. In severe nephritis, no doubt, the amount of retention of nitrogenous products such as urea serves as a valuable guide as to the extent, and particularly as to the progress, of the lesion, but under certain conditions even a low blood-urea value does not necessarily exclude renal involvement. In patients bordering on uræmia, and with a high blood-urea content, it is frequently possible by a modification of diet to reduce the blood-urea to the normal limit. Such patients, however, do not appear to improve as the result of the lowering of nitrogenous waste products in the blood, and they frequently die in uræmia, despite all dietetic precautions. From this it would appear that urea in the blood plays little or no part as a causative factor in the production of uræmia. While all this is generally understood, it is frequently forgotten that a high blood-urea may be produced by causes acting outside the kidneys altogether. It is essential that this fact should be remembered when dealing with certain cases of nephritis, otherwise grave mistakes may be made as to the condition present and the probable prognosis.

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[2] THE LANCET, 1920, ii., 894.

Importance of Blood-urea in Severe Acute Nephritis.

In one class of case—that of severe protracted acute or subacute nephritis—the real condition of the kidneys can be more satisfactorily ascertained by following the changes in blood-urea than by any other means. Frequently such patients are very ill for a few months after the original acute attack, and the general clinical condition may be so bad as to give little hope for recovery. Œdema and ascites are often prominent features, and dyspnœa, bronchial catarrh and gastro-intestinal symptoms may be much in evidence. After some time these patients frequently appear to take a turn for the better, this change being coincident with a definite lessening of the œdema. In such patients the clinical picture may give an entirely wrong impression as to the prognosis, for instead of improving the renal lesion may be progressing rapidly, and the outlook may be quite hopeless. In the majority of cases of protracted acute nephritis with severe œdema there is a tendency for the œdema to diminish as sclerotic changes progress in the kidney. Since many of the patient's symptoms, such as vomiting and dyspnœa, are apparently associated with the œdema, these symptoms may cease with the subsidence of the œdema, and the patient may appear to be recovering. Frequently, however, at this point the renal condition is becoming rapidly worse, and the superficial clinical evidence may be entirely misleading. Instead of the increased blood pressure becoming lower with the diminution of the œdema it still persists at a more or less high level, and this in itself is suspicious though not necessarily of grave significance.

In this type of case estimations of blood-urea at intervals of a week or 10 days give invaluable information. Whatever the clinical condition of the patient, a steady increase of the blood-urea indicates a hopeless prognosis, and I have not yet seen a single case in which a fatal issue did not supervene when the blood-urea was steadily rising, or was maintained at a high level for a considerable time. To some extent these patients are in somewhat the same position as the subjects of subacute infective endocarditis. Frequently, in the latter condition, the symptoms improve during apyrexial periods to such an extent that superficially the patient appears to be on the way to recovery, yet a fatal termination always ensues, and generally within a few months. It is just the same with certain cases of acute nephritis that do not clear up. Though the clinical condition frequently suggests improvement, the result is never in question. Some of these, of course, may have acute disease grafted on to a chronic lesion, but in others this is almost certainly not the case.

On the other hand, however severe the symptoms in such cases, it is found that when the blood-urea comes down steadily the outlook is good, and the patient gradually recovers. In these severe, more or less acute, cases frequent estimations of blood-urea will give more information than can be obtained by any clinical means, and often prevent gross mistakes in prognosis.

High Blood-urea with Healthy Kidneys.

Various factors will produce a considerable increase in blood-urea, even when the kidneys are quite normal. Abstention from fluid for a comparatively short time, especially in hot weather, may result in raising the blood-urea very considerably, so that a value of 60 mg. or more per 100 c.cm. blood may be found in a young healthy individual. Persistent diarrhœa will give similar results. The question of food also plays a very considerable part. Besides these factors, there are various extrarenal pathological conditions which give rise to a marked increase of blood-urea. Such conditions as cardiac disease, acute or subacute obstruction of the intestines, pneumonia, empyema, fevers, and other pathological processes are perhaps the most prominent agents in the production of this result. In such conditions the kidneys, though perhaps implicated to some slight extent as a secondary phenomenon of the disease, may be quite efficient in the performance of their function, and cannot in any way be held responsible for the accumulation of blood-urea. This fact is frequently forgotten, and in such cases the finding of a high blood-urea is often taken as proof of the presence of a definite renal lesion. Not infrequently slight nephritis may be associated with some other lesion which gives rise to retention of urea in the blood. This is seen, for instance, in subjects in whom both cardiac and renal lesions occur together. In these patients it is not uncommon to find a comparatively high blood-urea, while other renal tests indicate that the kidneys are but very slightly involved. Here the high blood-urea would seem to indicate that the kidney condition was very bad, but the other tests suggest the very opposite.

How are we to explain such anomalous results? The fact is that the high blood-urea is really dependent on the cardiac condition and not on the kidneys at all; from the blood-urea alone it would, of course, be impossible to say whether the chief defect lay in the renal or cardiac mechanism, but the divergence between the result of the blood-urea test and other renal tests is at once proof that the high blood-urea cannot be dependent on renal deficiency. Frequently, with cardiac improvement, the blood-urea becomes normal in such patients, and on subsequent examination all the tests indicate that the kidneys are satisfactory. On the whole, we are forced to the conclusion that a knowledge of the blood-urea content does not help us very much in forming an opinion as to the condition of the kidney unless we are certain from other symptoms or tests that the case is really one of nephritis. If we do not know this, we must always consider carefully whether high blood-urea is due to nephritis or to some extrarenal condition. Even when associated with albuminuria it is very unsafe to assume, without definite evidence, that a renal lesion is present, and the lack of appreciation of this simple fact occasionally results in tragedy. As an instance of this I may refer briefly to the case of a patient who was suffering from albuminuria and began to show vague symptoms which his medical adviser thought might be due to nephritis. A blood-urea estimation was carried out, when a concentration of 95 mg. per 100 c.cm. blood was found. The combination of albuminuria and high blood-urea satisfied his medical attendant that the case was one of chronic nephritis with uræmic symptoms. Some time afterwards examination of the urine of this patient revealed the fact that the amount of urea present was nearly 3 per cent. Despite all the apparent evidence that the patient was suffering from uræmia, it was now necessary to reconsider the diagnosis, for a urine containing this large amount of urea definitely and absolutely excluded the possibility of uræmia. Further examination showed the presence of an abdominal abscess which, as the subsequent history showed, was the cause of the high blood-urea.

In another case almost exactly the same thing happened. Here, again, uræmia was at first diagnosed but later definitely excluded by the finding of a high urea percentage in a specimen of urine. Further examination showed that the patient was suffering from an empyema which was responsible for the diagnosis of uræmia. Unfortunately, the correct diagnosis was made too late, and the original diagnosis of nephritis and uræmia cost this patient her life. Such mistakes have very frequently been made, simply because it is not remembered that the presence of albuminuria and high blood-urea do not necessarily indicate that the symptoms are dependent on kidney lesions. In all doubtful cases a sample of the urine should be taken and the urea estimated. If the kidneys are efficient the percentage of urea in the urine will be fairly high—say, somewhere in the region of 2·5 to 3·5 per cent., or even more. Indeed, if the concentration of urinary urea reaches 2 per cent. uræmia may be safely excluded.

In severe nephritis, on the other hand, the urine contains a comparatively low percentage of urea, generally in the neighbourhood of about 1 per cent. The accumulation of urea in the blood in nephritis depends on the fact that the kidney has to a large extent lost the power of concentrating urea in the urine, and so it follows that the urine passed by a uræmic patient must be deficient in concentration of urea. When the increase of blood-urea is dependent on some extrarenal cause, the healthy kidney has to deal with a large "head" of urea in the blood, and will consequently secrete a urine containing a high percentage of urea. If we have a patient presenting apparently uræmic symptoms with albuminuria and a high blood-urea, it may be quite impossible to say whether the condition is one of uræmia or not if we restrict ourselves to the ordinary clinical evidence. If we now examine a sample of urine for urea and find that the urea percentage is, say, 2·5 per cent. or more, we may take it for granted that the symptoms are not dependent on renal disease. In such a patient further investigation will generally reveal some other cause for the condition. If, however, the urine contains only 1 per cent. of urea or so it may be taken for granted that the kidneys are very inefficient and that uræmia is present. For differentiating uræmia from many conditions which simulate it the most reliable measure that we possess is the estimation of the urea in the urine. This simple process can be carried out in five minutes by the busiest practitioner; it requires no practice or skill in chemical manipulation, and has the advantage that it affords more definite evidence as to the condition of the kidneys than do any of the more elaborate tests. This statement is based on experience with very many thousands of cases, and while it must be admitted that no single test will suffice in all cases of renal involvement, yet there are many patients in whom this test will provide all the information that can be required.

If it is known that a high blood-urea is present examination of an ordinary sample of urine suffices; if the blood-urea concentration is unknown, it is necessary, in suspected cases, to give a large dose of urea by mouth, so as to make certain beforehand that the kidneys will have a large "head" of urea to work on. A full description of this urea-concentration test is given in my book[1] on renal disease, and only the shortest reference to it need be given here. The patient is given about 15 g. of urea dissolved in a couple of ounces of water, the bladder being emptied immediately after taking the urea. The total contents of the bladder are then voided at intervals of one hour and two hours after the urea is taken, and the percentage of urea in the specimens ascertained. One very important feature in the use of the test is the necessity for preventing the patient having too much fluid in the system, for under these circumstances the urea may act as a diuretic, and so much water may be excreted that the actual percentage of urea may not at all represent the maximum concentrating power of the kidney. As a rule, not more than 120 c.cm. of urine per hour should be passed after the urea is taken. Sometimes, patients come to be examined after copious draughts of tea or other beverages, and here the results of the test may be inconclusive and difficult to interpret. By far the best results are obtained by asking the patient to take as little fluid as possible for 12 to 18 hours before the test. This is a most important precaution which has perhaps not been sufficiently emphasised in the past, though I have been accustomed to carry it out for several years. When this is done, experience of a very large number of patients shows that the urea-concentration test is the most reliable method we have for the estimation of renal function. It also possesses the advantage that only very small amounts of urine are required for analysis—a most important consideration in many cases of genito-urinary surgery where samples have to be obtained from the ureters. Obviously, neither this test nor any other is capable of indicating whether a single kidney is diseased unless ureteric specimens are taken, for one kidney will secrete a urine of exactly the same concentration as the secretion derived from both kidneys. While it may be difficult to carry out the more elaborate tests for renal function in general practice, this urea-concentration test should be used by every practitioner because of its extreme simplicity and usefulness. This test, combined with an examination of the urine for protein, casts, blood, and other elements will, in the great majority of cases, suffice to determine the condition of the kidneys. Estimation of blood-urea will help to complete the picture, but this estimation is frequently unnecessary, and, when done, must be very carefully considered in the light of the points already mentioned.

Nephritis and Arterio-sclerosis.

The comparative frequency of a general breakdown in health in middle-aged business men of more or less free and active habits is quite noteworthy. Such patients are often found to suffer from marked cardio-vascular changes. The arteries may be somewhat hard, the blood pressure raised, and the heart considerably enlarged, while examination of the urine shows the presence of protein and often of some casts. The diagnosis frequently made in such a patient is chronic nephritis with secondary cardio-vascular involvement, but it is an interesting feature that many of these individuals possess quite satisfactory kidneys. Experience shows that, to a great extent, the outlook in patients suffering from these cardio-vascular changes depends largely on the condition of the kidneys, for when the kidneys are markedly involved and cardiac and vascular changes are present as well, then it may be said at once that the outlook is hopeless. Many of these patients die within a year. On the other hand, when the kidneys are found to be functioning well, the outlook is, as a rule, not nearly so hopeless, and indeed may be reasonably good. In cases of this nature a complete investigation of renal function should be carried out and the prognosis based largely on the results of this examination. Here, however, a word of warning is necessary, for it is often impossible to say from the result of one examination what the probable outlook is. Renal efficiency tests will indicate the condition of the kidney at the time the tests are done, but are quite incapable of affording any clue as to the progressiveness of the disease. If possible, therefore, it is best to defer giving an opinion as to prognosis until the patient is again examined a few months later. If, on the second examination, the results of the tests are worse than formerly, then the prognosis is decidedly bad, since the indications are that a rapidly progressive lesion is at work. If the tests show the same or better results than were obtained at the previous examination, then a correspondingly good prognosis may be given, provided the cardiac condition itself is not getting much worse. Naturally, such possible accidents as a cerebral hæmorrhage or cerebral infarct must be taken into account. I have, however, been struck by the fact that patients, even those suffering from marked arterio-sclerosis and cardiac change, often live for many years when the kidneys are not markedly involved.

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[1] Modern Methods in the Diagnosis and Treatment of Renal Disease. Constable and Co., London.

The Relation of Albuminuria to Nephritis.

The days are now passed when albuminuria was generally taken as a fairly definite indication of renal disease, but it is not yet fully realised that the presence of some protein in the urine is a common condition, while nephritis, on the whole, is a comparatively rare disease. There is a good deal of evidence, chiefly based on the results of examination of soldiers in the late war, that from 3 to 5 per cent. of healthy individuals show some degree of albuminuria. The presence of protein in the urine cannot therefore per se be taken as evidence of nephritis. The appearance of albuminuria in young people under the age of 20 or so—the so-called functional or adolescent albuminuria—is now accepted as a definite entity having no relation whatever to renal disease, but it is not so well known that albuminuria is, perhaps, nearly equally common in adults and elderly people whose kidneys are quite normal for their age. Even the presence of a few hyaline casts is not necessarily of much significance, so that examination of the urine in such cases is not very helpful. Again, it is quite certain that the albuminuria associated with a definite attack of acute nephritis may persist through life, and yet the kidneys may show no evidence of deficient function. It is, therefore, not good practice to diagnose chronic nephritis in an individual with albuminuria simply because the albuminuria is associated with a history of acute nephritis many years before. Certain of these subjects are the victims of sclerosed patches in the renal substance, but frequently no signs of progressive disease can be ascertained, and on testing it may be found that the kidneys are functioning excellently. It is equally true that the urine may be quite free from protein in chronic nephritis of all grades of severity; indeed, it is not uncommon to see a patient dying from uræmia without any protein having been found in the urine.

In the routine examination of several thousands of patients suffering from the effects of war nephritis nearly 5 per cent. showed very definite evidence of chronic nephritis without any albuminuria. By clinical means alone it is frequently quite impossible to say whether or not albuminuria indicates the presence of nephritis, and the question at once arises whether it is possible to do this by means sufficiently simple to be employed by the practitioner who does not possess special facilities. In many cases the question can be answered by the use of the urea-concentration test as fully as it is possible to answer it by the most complicated tests. If, for instance, the urine is found to contain 3 to 4 per cent. of urea, as is often the case after the test is carried out, it may be taken for granted that all other tests will simply corroborate this one, and that as far as it is possible to say by any means at our disposal to-day, the kidneys are efficient. Of course, no test that has ever been evolved can give an indication of very early slight pathological changes in the kidneys, but the urea-concentration test probably approaches more nearly to this ideal than does any other test, since its basic principle depends on giving the kidneys more work to do and ascertaining how they can perform this work. In other words, it is somewhat similar to the exercise test in cardiac disease, and quite as simple. In conjunction with the clinical evidence this urea test will frequently help to settle quite definitely whether a patient with albuminuria has defective kidneys or not.

Treatment of Functional Albuminuria.

When the medical attendant is satisfied that a patient with albuminuria is not suffering from renal disease, it frequently becomes necessary to endeavour to stop the albuminuria. It is unfortunate that many of our public bodies who examine youths for entrance to various Services very often refuse to admit patients suffering from albuminuria, even though examination shows that the condition is of no importance. Various methods have been adopted with a view to getting rid of the condition, but in my experience the simple method of keeping the patient in bed, or at any rate at rest, for a day or two, and giving him large doses of calcium lactate and sodium bicarbonate (say 30 gr. of each three times a day) generally removes the condition at least for a time. When this simple treatment results in a disappearance of the protein it affords additional proof that the condition in the kidneys is not an organic one. It is, of course, unfortunate that many insurance companies look askance at subjects with albuminuria, but no doubt, in the future, when the value of renal tests is more generally appreciated, this will be remedied. Even now, in some quarters, signs of a change in this direction are beginning to appear. In general, it is not a very difficult problem to decide by the use of modern methods whether a case of albuminuria is dependent on nephritis or is simply an accidental occurrence.

THE PANEL CRISIS.

NATIONAL HEALTH INSURANCE FUNDS: TRADE-UNION AND LABOUR PARTY VIEW.

INFORMATION concerning the general financial position under the National Health Insurance Acts is embodied in Part III. of the report lately issued by the Joint Advisory Committee on Public Health, and accepted by the Trades Union Congress General Council and the National Executive of the Labour Party. Attention is given to "various funds in connexion with National Health Insurance which, although constituted of, or earned by, moneys which primarily or actually belong to approved societies, are funds in respect of which the societies themselves are permitted no direct control, and in which societies are officially regarded as having little (if any) financial interest." These include (inter alia): (*a*) the account of moneys permanently or temporarily invested for approved societies (including reserve values redeemed) and the interest earned thereby; (*b*) the reserve suspense fund; (*c*) the unclaimed stamp sales account; (*d*) central fund; (*e*) the deposit contributors' fund; (*f*) the reserve values (apportionment) account.

(*a*) *Interest on Moneys Invested for Approved Societies.*

Up to Dec. 31st, 1922, the Ministry had earned in interest and profits about £3,000,000 over and above the sums which they had credited to societies in respect of the same period, and after deducting losses incurred of £1,300,000 on pre-war investments, there still remained over £1,600,000 clear profit. On the investments as they stood at Dec. 31st, 1922, the Ministry would continue to make a profit of about £300,000 annually after crediting societies with a lower rate of interest than the Ministry in fact earn with the societies' funds; and as additional investments amount to about 1¾ million pounds annually, this profit would constantly increase.

(*b*) *Reserve Suspense Fund.*

The main purpose of this fund is to create reserve values in a case where a person ceases to be insured otherwise than through death. Should the person re-enter insurance, a reserve value appropriate to his or her age is debited to the reserve suspense fund and credited to the society which he or she joins. A large number of persons who go out of insurance on marriage or change of status never re-enter employment, and no claim is made upon the reserve suspense fund in respect of them; the sum transferred by societies to such fund remain therein, and the fund accumulates at interest. As recently as 1920 the Government Actuary expressed the view that the surpluses in the reserve suspense fund would be such as "materially" to shorten the period fixed for the redemption of reserve values amounting to £66,000,000 if utilised for that purpose. Such surpluses may, in fact, be applied to other purposes, such as medical benefit.

(c) *Unclaimed Stamp Sales Account.*

From the commencement of National Health Insurance a fund of hitherto unknown dimensions has accumulated, represented by the difference in the value of health insurance stamps sold by the Government and the value of that proportion of the same stamps placed upon insurance cards surrendered to the Ministry of Health by the approved societies. The difference represents lost or spoiled stamps plus the value of stamps placed upon cards by employers whose employees either destroyed them or have never troubled to surrender them to societies. In the early days of the Act this latter feature was, no doubt, greater than it is to-day, but the income lost annually to societies generally by the apathy of their members is still considerable. Between July, 1912, and December, 1922, the difference between health stamps sold and those credited to approved societies and others approached five million pounds sterling, interest alone amounting to over £750,000.

(d) *Central Fund.*

This fund, admittedly over £2,000,000 at the end of 1921, was originally formed to assist approved societies who were in deficiency at valuation through no fault of their own. It was maintained by a deduction from the weekly contribution paid by the insured. In 1921, however, it was considered that the fund was large enough for its purpose and the sum theretofore taken from the insured persons' contribution for the purpose was utilised to provide the 5*d.* before referred to as a temporary addition to the approved societies' administration allowance. In 1922 one-third of the sum by which the Treasury was relieved (under the Geddes recommendations) to Dec. 31st, 1923, in respect of the grant for medical benefit, was directed by Parliament to be paid out of the central fund. Very few claims, amounting to not more than £11,000 in all, were made upon the fund at the first valuation. Possibly a slightly increased call may be made upon it at the second valuation now proceeding, but the fund accumulates at interest (about £80,000 per annum), and will in that way recover its losses.

(e) *Deposit Contributors' Fund.*

The position of a deposit contributor is that contributions paid by, or in respect of, him are alone available to him when in need of benefit. Like members of approved societies, however, deposit contributors drop out of insurance and are only entitled in two events (death or emigration) to receive a portion (not more than one-half) of the sum standing to their credit. Some portion, if not the whole, of the sums left in the Deposit Contributors' Fund by contributors who have ceased to be insured is transferred to the Reserve Suspense Account; up to the end of 1918 some £600,000 had been so transferred. At the end of 1920 this had been increased to £1,000,000, and at the end of 1923 will probably exceed £1,500,000.

(f) *Reserve Values (Apportionment) Account.*

It was assumed in 1911 that through the sinking fund provided out of the weekly contributions under the Act, and accumulated at 3 per cent. interest, would redeem—i.e., turn into actual cash—the £66,000,000 of initial reserve values credited to societies within about 20 years. The sinking fund has, however, already been raided on several occasions during the past ten years, and as a result the date of redemption has been postponed to about 1955. There would seem to be little reason for concern about the actual date of redemption so long as approved societies are credited annually with interest at 3 per cent. out of the sinking fund upon the amount of cash ultimately payable to them, and no valid objection to another postponement of the date of redemption if for the benefit of the present generation of insured persons a further sum can be set free each year for medical benefit.

Certain other funds administered centrally by the Ministry, such as the Army and Navy Insurance Fund, the Exempt Persons Fund, &c., would doubtless be found upon examination to possess surpluses over and above those required for the performance of the objects for which the funds exist. It is thus possible to find within the ambit of National Health Insurance unallocated funds constituted out of the present weekly contribution sufficient to secure not only a continuance of the existing service, but also of various improvements, at a cost which would not deprive the insured of benefit advantages which they at present possess.

A review of the financial position of National Health Insurance obtained by the British Medical Association during the course of, but independently of, this consideration of the subject, confirms the views expressed above, and will shortly be published.

Position of Approved Societies at the Second Valuation.

In this connexion the report states briefly as follows:—We ought not to pass from the region of finance without a few general observations on the position of approved societies at the second valuation. It has been clearly demonstrated to us that societies generally will have suffered severe loss during the past quinquennium as the result (*a*) of a serious reduction in the number of contributions paid owing to unemployment; (*b*) of paying minimum cash benefits to unemployed members without (at any rate for a period) receiving the contribution necessary to sustain such payments; (*c*) of bearing from April, 1922, to December, 1923, two-thirds of the Treasury grant for medical benefit which came to an end with the Geddes Report. Had those losses—due to economic conditions which have obtained for over two years and still obtain—not been present, the financial position of approved societies would undoubtedly have been rosy, for certain "profits" even now exist as a partial set-off to these losses. These profits, briefly stated, are: (1) A continued sickness incidence below the expected; (2) the added advantage derived therefrom since 1920, when the normal rates of benefit were increased 50 per cent., and since 1921, when further cash benefits were provided out of valuation surplus—both on the basis of the original expectancy as regards claims; (3) the addition to the benefit fund of the contingency money retained in hand in 1918; (4) a continuance of the improved interest-earning power of money above that anticipated in 1911; (5) gains on the maturity, sale, or exchange of wartime issues of Government stock; (6) balances unexpended of sums set apart for treatment benefits under first valuation schemes which have not been in full operation during the whole period; (7) interest earned on accruing surpluses.

Of insurance finance it may be true to say that both as regards mortality and sickness the national rates have improved since the 1911 Act was passed. The former acts adversely upon sickness insurance, the latter favourably. It would, however, appear that disablement benefit—which was expected to reach its apogee in ten years—is still on the up-grade, and the forecast of the Ryan Committee, set up by the Treasury in 1914, that this particular benefit might prove in the end more costly than was anticipated in 1911, especially as regards women, will probably be realised.

The Committee think that on the whole it is wise not to assume that societies generally will be able to give, after the second valuation, any greater benefits than they now give as the result of the first, and that to achieve this result it may be necessary to indent upon that portion of the surplus set aside by the Government valuer at the first valuation as "indisposable." The second valuation is to be performed in two sections, the smaller societies being valued as at the end of 1922 and the larger as at the end of 1923.

THE SYSTEM OF PAYMENT BY ATTENDANCE.

Without affecting the constitution of the central fund or pool out of which insurance practitioners as a whole are paid, various methods have been suggested for individual distribution. Under the Acts this is essentially a matter to be determined by the doctors themselves in any area. The capitation method is well known, and its drawbacks, real or imagined, have been set out faithfully enough. Sir John Collie, n a letter to the press, has revived an old proposal to pay by the number of cases treated in the year. The Manchester and Salford area elected from the first to have a system of payment by attendance, and we are indebted to Dr. Stanley Hodgson for the following exposition of the psychological working of this system in Salford, where it has been most highly developed:—

It may, at first glance, be considered extraordinary that there should be any far-reaching differences in the results accruing from the payment of a professional man by a salary depending only on the number of persons for whom he accepts liability for treatment and from the payment for the actual services rendered—and still more extraordinary when it is premised that the total payment in the latter case must be the same as would be made were the former method in operation. That there are differences is well known, and the supporters of the "payment per attendance" method maintain that these differences are fundamental and indeed vital. The underlying factor is purely psychological, and in discussing the claims of the two methods there is usually a tendency to consider only remote psychological effects and ignore the immediate ones. And yet in the very great majority of persons it is the immediate effect that colours the outlook, however much the remote effect may be desired.

Capitation and Attendance Systems Contrasted.

Under a capitation system it is to the advantage of a medical practitioner to keep his clients healthy, since he will be paid the same amount whether they are sick or well. Under the attendance system it will be of equal importance to prolong illnesses, since the greater the attendance the greater the payment. These are the psychological influences supposed to bear upon the practitioner and mould his conduct towards his insured patients. It is easy to understand that advanced thinkers in the friendly society world accept these statements as cogent and valid, but it is difficult to understand how any medical man, whose profession demands that he shall use his brains, can fail to see their obvious fallacies.

Let us examine the first statement. How can a medical man keep his patients in health? Clearly he must exercise an unremitting vigilance over their every action; he must inspect every article of diet before it is cooked and again before it is consumed. He must direct the putting on and putting off of clothing; he must personally supervise the work of his client; in fact, he must combine the rôles of parent, tutor, and medical attendant. He would find it difficult to succeed were he to devote the whole of his time to *one* patient; more than one makes it at once absurd. The first premise must be altered, therefore, to the practical formula that it will be to the pecuniary advantage of a practitioner to *attend* his patients as rarely as possible. And this is the immediate psychological effect of the capitation system. Fortunately the great bulk of the medical profession realises that the practice of medicine entails the maintenance of high ideals, and the pecuniary benefit of suppressed attentions is not allowed to weigh with the individual practitioner; but, however honourably he may fulfil his obligations, he cannot avoid the mental effect of the knowledge that his income is *not* affected by the amount of work that he does.

Under the attendance system the practitioner is supposed to be benefited financially by a prolongation of illnesses. Here, again, we have to ask how this can be achieved. Frankly it is impossible. The most he could do would be to insist that the patient was not as well as he imagined himself to be and to demand prolonged convalescence. Unless the patient were to aid and abet the doctor—were, in fact, a malingerer—this method would fail for economic reasons. There remains, then, for the dishonest medical man only the method of too frequent visits and consultations. And this is a real danger in unrestricted payment per attendance. But it was foreseen at the onset by the protagonists of the attendance method, the Salford Panel Committee, who laid down a criterion of attendance. They declared a standard and that standard was the amount of attendance that an average practitioner would give to a private patient in a similar class of life, with the further condition that the attendance should satisfy the patient both in adequacy and in moderation. That is to say, the patient should feel that he wished to continue the relations of patient and doctor and was prepared to pay the bill. The committee next proceeded to express this standard in practical terms, and the first method adopted was to take the grand average of attendances on the whole of the sick by the whole of the doctors. This would mean, for example, that if in a given period, say one month, 100,000 sick had received 300,000 attendances, there would be a grand average of three attendances per patient attended. Each individual practitioner had then his own particular average ascertained for the same period, and it was found that the men fell roughly into two categories—namely, those whose average attendances were consistently moderate and those who were consistently high. As each patient was only worth a fixed sum to the pool from which payments were made, and as the grand total of attendances was far too great to allow of even a very modest fee for each item, the "above-average" practitioners were reduced to the general average before they were allowed to rank for payment. The "below-average" were not raised to the general average.

The Low-average "Bogey."

After a time it was clear to the committee that the below-average contingent contained most of the men of best repute and that they were suffering pecuniarily because the large attendances of the others raised the average cost. This necessarily followed the fact that the pool was insufficient to pay the agreed fee for visit, attendance, &c., on the whole general average. A "bogey" was then set up, based on the performances of the admittedly good low-average men, and individual averages were then reduced to this bogey. As payments were monthly a new source of inequity arose from the action, or possible action, of those who encouraged a patient to put in an appearance, if only once, in the succeeding month. Such action would tend to lower that doctor's particular average and thus give him an unjustifiable "pull" on the funds. Repetition factors were then determined—i.e., the number of times the same patient appeared on the year's monthly sheets. These factors gave valuable information and revealed the not surprising fact that the low-average attendance men had also low repetition factors. A further source of possible unfairness lay in the treatment, as regards payment, of what were termed "part-time patients," that is, patients who went to two or more doctors during the current year as contrasted with "whole-time patients" who remained under the same doctor for the whole period. Satisfactory methods were adopted for equalising these inequalities, and what is more, the whole process of adjustment was simplified so that it could be carried out automatically by unskilled clerical labour.

Mental Attitude of Practitioner Participating in Attendance System.

The mental attitude of the insurance practitioner under the attendance system as regards his patient became, therefore, the following complex. First there was the feeling of satisfaction. Every patient that he saw represented a fee. This exactly corresponded to the attitude that arose in private practice and is the most valuable adjunct to satisfactory treatment. Secondly, he would have the conflicting ideas, "If I do not give this patient what he considers sufficient attention, he may, under the right of free choice, immediately change his doctor, whereas if my attention on him is considered by the committee to be excessive I shall have done my work for nothing."

Unable to set up any artificial standard, he allows the two ideas to cancel themselves out and treats his patient just as the necessity arises. There remains to him, therefore, only the emotion of pleasure at the anticipation of reward for work done, and this emotion, colouring all his relations with his patient, is responsible for the smoothness with which the system runs and the satisfaction of those who run it. It is all a question of psychology, and the opponents of payment per attendance lamentably ignore this potent factor in all their calculations. In practice the practitioner who treats his insured patients just as he would treat them were they private patients of the same class finds that his payments remain singularly stable and that he loses no more than those lost amongst an equal number of private patients.

RESIGNATIONS FROM THE PANEL.

The total number of resignations of insurance practitioners received by the secretaries of panel committees throughout the country was as follows :—

	Areas.	Number on the panel.	Resignations— Number.	Per-centage.
England	127	.. 16,356	.. 15,460	.. 94·5
Wales	17	.. 1,157	.. 1,086	.. 96·3
Scotland ..	47	.. 2,413	.. 2,323	.. 93·9
Total ..	191	.. 19,926	.. 18,869	.. 94·7

Information was received from all the areas. In the case of Scotland the Highlands and Islands are not included.

RECORD OF A RURAL PANEL.

We have been asked what is the normal experience of rural panel practice in regard to the number of patients attended during the year, and the number of attendances at the surgery and at the house. No body of figures is available, although certain returns have been asked for and obtained by the Insurance Acts Committee of the British Medical Association. The time spent in entering daily attendances and visits amounts in the course of the year to no trifle, taken from the rural practitioner's already scanty leisure. We have, however, had the advantage of investigating the details of a practice in a rural district where minute records have been kept by two doctors in partnership. The partners live in the same village, the practice extending up to eight miles in various directions, and panel practice accounting for about one-quarter of the gross receipts. The records for 1921 and 1922 are as follow :—

	1921.	1922.
Number of patients on panel	1494	.. 1429
,, ,, ill during year ..	516	.. 551
,, attendances at surgery ..	4037	.. 4100
,, visits paid at house	1504	.. 2259
Cards removed during the year	156	.. 167
Total remuneration received, including mileage and dispensing fees	£1250	.. £1090

With regard to the cards removed during the year, it should be added that the majority of these patients received visits which are not counted in the list as given above. The running motor-car expenses of the partnership, excluding capital outlay or redemption, amounted to £700 to £900 a year, and the full-time services of a dispenser were required.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Supply of Insulin.

IN a letter to the Dublin daily press Prof. T. G. Moorhead draws attention to the difficulty in providing insulin for poor patients. He points out that since the discovery of the therapeutic powers of insulin, the clinical hospitals have been besieged by patients clamouring for treatment. Prof. Moorhead would like to see a special "Insulin Fund" started to help poor patients both during their stay in hospital and subsequently. But, if it should prove that voluntary subscribers were either unwilling or unable to help, so long as the State was willing to pay for the cure of venereal disease, it should also help in providing the cost of the remedy for a disease which is a misfortune, and not a fault.

The Red Cross on Motor-Cars.

For some months past the continued use of the Red Cross on motor-cars in Ireland has given rise to criticism. Last winter and in the preceding years, when hostilities were still going on, the use of the Red Cross was, no doubt, not only a convenience but a protection. Of late, however, it has been no longer needed, and it was suggested that its continuous use savoured of unnecessary advertisement. Last week the Joint Committee of the British Red Cross Society and of the Order of St. John of Jerusalem gave warning that no more Red Cross slips would be issued by them, and medical men were asked to remove these slips from their cars as there was now no necessity for their use. It is to be hoped that the advice will be followed. The labelling of doctors as such by the wearing of conspicuous marks in normal times is without justification.

Death of Dr. Wallace Beatty.

The death of Dr. Wallace Beatty, honorary professor of dermatology in the University of Dublin, occurred on Nov. 8th at his residence in Dublin. He was in his seventieth year and for the past six or eight months had been in unsatisfactory health. Dr. Beatty was educated at Dungannon Royal School and at Trinity College, Dublin. In the latter he won scholarships both in classics and in medical subjects, and he represented the College on the football field. He obtained his medical qualifications in 1879 and became a Fellow of the Royal College of Physicians of Ireland in 1887. He was elected a physician to the Adelaide Hospital and for many years practised general medicine though always keeping a special interest in diseases of the skin. In middle life he began to suffer from deafness, which gradually made the work of a general physician more difficult, and some 20 years ago he decided to confine his work to dermatology. He contributed many articles and reports dealing with this subject to the special journals. Only last year he published a small manual of diseases of the skin, which in its clarity and precision leaves nothing to be desired. It consisted mainly of the lectures he was in the habit of giving to visitors to his dispensary at the Adelaide Hospital. The death of Dr. Beatty removes a serious and gifted worker in the field of dermatology, and also deprives the medical profession of one of its most loved and respected members—modest, unassuming, and courteous.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Insurance against Sickness in Hungary.

THE Hungarian Minister of Public Welfare has under consideration a projected law relating to reform in the workers' insurance scheme. The new proposals, if accepted, will mark a true reform, inasmuch as insurance will then be extended to all classes, irrespective of financial or social status. The Hungarian medical journals oppose the innovation on the grounds (1) that private practice by physicians will be practically abolished, and (2) that it is too extreme a socialistic measure, in a country which is one of the most conservative of middle Europe. "We have no doubt," says the *Magyar Orvos* (Hungarian Physician) "that the Minister was guided by socialistic principles; but can one call a line of action socialistic which, while conferring equal benefits on rich and poor alike, at the same time despoils the medical profession of its chief source of income? Who is going to profit? Certainly not those to whom the Minister wishes to render good service."

Sick and Crippled Children: A Grave Outlook.

The annual meeting of the Hungarian Medico-Pedagogical Society, held last month, was attended by many medical men, in addition to judges, teachers, and parents. All who spoke were unanimous in stating that the lowered standards of public health and of the physical fitness of the individual, with all their attendant distress, were due to the general poverty of the land. Thousands of children, and adults also, were crippled mentally and physically. All of these, it was held, could be restored to health, or at least rendered capable of earning a living, if adequate and free treatment were provided. One of the speakers went so far as to reproach the Government with spending more on horse-races than on the care of destitute children. Dr. Paul Ranschburg, neurologist, gave an address on the ways and means of conducting an effective campaign against the prevailing distress. He stated that the number of children who were in some way affected, either blind, deaf and dumb, crippled, or mentally and morally defective, exceeded 100,000. In the majority of cases, he stated, these defects were curable. Only a fraction of the moral defects had a pathological origin, by far the greater proportion were due to poverty and misery. He added, further, that in the light of modern knowledge on the functions of the endocrine glands, greater attention should be paid to the application of gland therapeutics in treating many mental and moral deficiencies. Mr. Daniel Geguss discussed the morals of the streets. As magistrate of the court for juvenile criminals, he had had the opportunity of studying the social causes of destitution among the youth. Girls went on the streets to escape from dirty and overcrowded lodgings, cold, sickness, and starvation. Parents in so many cases were unable to provide for their offspring, and thousands were driven to seek a livelihood in prostitution. Was it to be wondered at that 80–90 per cent. of such girls were diseased? The police refrained from controlling prostitutes, or of having them medically examined, as there was no accommodation available in the hospitals. Such problems called for most serious consideration; the remedy lay, the speaker asserted, in improving the social code, in providing adequate housing accommodation, and in educating the masses. The proscribing of immoral literature, the exclusion of all children under 16 years of age from cinemas, and the prohibition of juvenile employment were all imperative measures if sane and happy children were to be reared.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear Admiral J. Shand is placed on the Ret. List at own request.

ROYAL NAVAL VOLUNTEER RESERVE.

Temp. Surg. Lt. (D.) G. P. Monk is transferred to Permt. List as Surg. Lt. (D.).

ROYAL ARMY MEDICAL CORPS.

Maj. D. P. Watson is appointed Dep. Asst. Dir.-Gen., vice Maj. and Bt. Lt.-Col. H. V. Bagshaw.

Col. B. Watts, late R.A.M.C., retires on ret. pay.

Maj. N. E. Dunkerton relinquishes the temp. rank of Lt.-Col.

REGULAR ARMY RESERVE OF OFFICERS.

Col. J. D. Ferguson, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

MILITIA.

Capt. R. M. Beath to be Maj.

TERRITORIAL ARMY RESERVE.

Lt.-Col. A. M. Martin resigns his commn. and retains the rank of Lt.-Col.

ROYAL AIR FORCE.

Medical Branch: Flight Lt. B. F. Beatson (Capt., I.M.S.) is granted a permanent commission.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: T. J. D. Atteridge, E. C. K. H. Foreman, and W. J. G. Walker.

INDIAN MEDICAL SERVICE.

Col. C. H. Bowle-Evans to be Major-General.

Obituary.

THOMAS HENRY GREEN, M.D., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO THE CHARING CROSS AND BROMPTON HOSPITALS.

WE have already announced the death of Thomas Henry Green, consulting physician and emeritus lecturer on clinical medicine to Charing Cross Hospital and consulting physician to the Hospital for Diseases of the Chest, Brompton, which occurred at his residence at St. Albans on Nov. 5th last in the eighty-second year of his age.

Dr. Green, who for many years was recognised as a leading authority on diseases of the lungs, and whose text-book on pathology has well served so many students, was educated at University College, London, where he graduated as M.R.C.S. in 1864, taking the degree of M.B. Lond. in the following year. After holding the usual residential appointments at University College Hospital, he was elected physician to the North-West London Free Dispensary for Sick Children and later medical registrar to the Children's Hospital Great Ormond-street. He proceeded to the M.D. degree in 1866 and was appointed lecturer on pathology at the Charing Cross Hospital, being elected assistant physician in 1869. He was already on the staff of the Hospital for Diseases of the Chest at Brompton, and throughout his long professional life he was associated with the two institutions, being at his death consulting physician to both. He was esteemed by his colleagues at each hospital as a highly equipped physician, for the care that he took both in making the diagnosis and allotting the proper treatment was boundless.

"It was a fortunate day in the history of Charing Cross Hospital," writes an old colleague, "when Thomas Henry Green joined its staff. He brought with him the spirit, example, and teaching of two of the masters in medicine of the time: Virchow, the greatest living pathologist; and Jenner, the leading clinician then in England. Fresh from Berlin after University College, young but by temperament calm, earnest, judicially minded, he introduced order and interest with precision and scientific methods into the post-mortem room for the first time, and order and true clinical observation into the out-patient department. He invited the students to the post-mortem room, and his descriptions of the conditions found were regarded as a marvel of lucidity and exposition. History reported that before Green's time post-mortem examinations stopped short at the discovery of 'the cause of death'; and his first necropsy was witnessed with amazement. Along with these methods he brought the doctrine of the cell and cellular pathology, the basis of his lectures and of his text-book on Pathology and Morbid Anatomy which was to become rapidly famous. His lectures on pathology were delivered with an enthusiasm and precision which carried conviction to students and rendered reference to text-books unnecessary.

"In the examination, treatment, and general care of his patients Green exercised the closest attention personally, and he exacted the like from his resident staff. Thus: 'You will sit up to-night with this patient' he said to a house physician, 'since sister cannot tell me how he slept.' His visits to the wards were strictly regulated; on fixed days to the patients with his house physician, on other days to meet his students. His bedside teaching was closely modelled on that of Jenner—precise, sententious, dogmatic, and eminently practical. His regular clinical lectures (he never accepted the chair of medicine) were planned and timed with the same precision—consisting of an annual series which the students learned to anticipate but which they valued none the less—his favourite subjects being pneumonia, typhoid fever, tuberculosis, and cardiac failure. Green's instruction was never lost or forgotten, as many of his hearers still testify. Or he would give a lecture of half an hour on a subject illustrated in an individual case—such as indigestion, dyspnœa, or paralysis—a homily which served his pupils immediately as preparation for examinations and was a sure guide in practice in later years. Then the students were dismissed instead of ' going round ' with him, for he held that tit-bits of clinical instruction were thrown away. He liked to adjust the various noteworthy points in a case in proper sequence and show the bearing of them to each other. Equal order and orderliness marked his work at Brompton. There he sat alone in the out-patient room or went round the wards with his resident officers, and requested visitors desirous of following his practice to meet him at Charing Cross.

" Apart from his wards and his own immediate offices, Green did not engage in the work of Charing Cross Hospital and its medical school, which were, in his earlier years there, passing from relative dullness and obscurity into a period of success as a teaching centre with fresh ideals. To this success Green's work and his name contributed largely, but he never was more than an ordinary member of the different committees. He fulfilled the duties of his posts unfailingly and in full measure, but he appeared to stop there ; to spend no time in general colloquial discussions. Not that he was unsociable. Personally Green was by temperament reserved, not to say distant, in manner, habitually somewhat formal when receiving his friends and when bidding them good-bye. Indeed, he was in every respect precise, faultlessly trim in dress, punctilious, brief, definite, and exact, yet tactful in giving his opinion and advice to doctors, patients, and patients' friends. But in social intercourse and entertainment he was always bright, interesting, and full of enjoyment ; nowhere more so than at the delightful old-time dinners of the Brompton staff. His pupils became his firm friends, and he a valued friend to them. Many of them still testify to the precious lessons they learnt at his side."

Upon his special subject Dr. Green was a clear and informative writer, good examples of his work being furnished by his clinical lectures on phthisis in our own columns, while he was a contributor on the same and allied subjects to the *British Medical Journal* and to the *Medical Times and Gazette*. Other papers by him were published in the Transactions of the Pathological Society and the Clinical Society and revealed the same qualities, in that the advice given was always clear and of a practical bearing. In Quain's " Dictionary of Medicine " he wrote the article on Inflammation of the Lungs, and he was also the author of a volume on the Pathology of Pulmonary Consumption. But Green will be best remembered by his " Manual of Pathology," the seventh edition of which appeared as recently as this year, being revised and enlarged by Dr. W. C. Bosanquet and Dr. G. S. Wilson. Few medical textbooks can have enjoyed so successful a career as this one, for it has been in demand among medical students for over half a century. Year by year successive editors have been able to modernise it without robbing it of its original and distinguishing features. Thus it has always remained a model of a text-book.

WILLIAM HARRISON CRIPPS, F.R.C.S. ENG.

THE death occurred at his London residence on Nov. 8th of Mr. Harrison Cripps, consulting surgeon to St. Bartholomew's Hospital, and well-known also in the world of business as chairman of the Metropolitan Electric Supply Company.

William Harrison Cripps was the son of Henry William Cripps, Q.C., Recorder of Lichfield, and the brother of Lord Parmoor, and received his medical education at St. Bartholomew's Hospital, with which institution he was associated throughout the whole of his professional life. He qualified as F.R.C.S. in 1875, and was elected assistant surgeon to the hospital in 1883, becoming surgeon in 1902 in succession to Mr. Willett, so that, as has so often happened at St. Bartholomew's Hospital, he was a member of the staff for 20 years before he obtained a charge of wards. Happily a great opportunity for practice was furnished by his selection as surgeon to the gynæcological department. His gynæcological work is well known, but his chief professional reputation, as well as a large private practice, depended upon his skill in diagnosing and treating affections of the rectum. As long ago as 1876 he won the Jacksonian Prize of the Royal College of Surgeons of England for an essay on the treatment of cancer of the rectum. As a volume this essay went through several editions, the possibility of curing or relieving the patient by excision being closely considered, and from the date of publication he became a recognised authority on diseases of the rectum and anus.

Harrison Cripps wrote also a treatise upon abdominal surgery and ovariotomy, while he contributed valuable papers on both of his special subjects to the St. Bartholomew's Hospital Reports and to the columns of THE LANCET. Other papers, which he published in the Transactions of the Obstetrical Society and those of the Pathological Society, dealt with malformations of the rectum and the minute anatomy of certain rectal growths. He contributed also to Heath's " Dictionary of Practical Surgery " and Holmes's " System of Surgery " ; his selection to assist in these well-known works being an indication of how high he stood in the opinion of the professional leaders as an exponent of the pathology and surgical technique of the difficult conditions with which he had made himself familiar. In the Royal College of Surgeons of England Harrison Cripps played an important part, for he was elected to the Council in 1908 and was a member of that body for a period of 12 years, serving for two years as Vice-President.

Sir D'Arcy Power has sent us the following appreciation :—

" A study of the careers of the Fellows of the Royal College of Surgeons of England shows that many hospital surgeons have been such good organisers and fine administrators as to have excelled in spheres widely divergent from those they had mapped out for themselves to conquer. The qualities which make a first-rate surgeon are identical with those required by a successful man of business, to take only a single example. Harrison Cripps was an outstanding instance and he used his talent in a double capacity with equal advantage. On his mother's side he came of a medical family long established in Gloucestershire, whilst his father who came of the same stock was a successful member of the Parliamentary bar. The most distinguished member of the Cripps and Lawrence families was Sir William Lawrence, surgeon to St. Bartholomew's Hospital from 1813 until 1865, and Cripps was therefore predestined to attach himself to the same school. He soon gave evidence of his ability by gaining the Jacksonian Prize for his essay on cancer of the rectum and its operative treatment, a subject which interested him until the end of his life. Promotion to the teaching and surgical staff soon followed and he obtained practical experience as surgeon to the Great Northern Hospital. He became assistant surgeon at St. Bartholomew's Hospital in 1883, after having previously contested an election in which he was beaten by Mr. W. J. Walsham. As assistant surgeon he remained until 1902, his hospital practice during this long period of waiting being restricted to the three beds allowed him by the courtesy of his senior. In later years he was attached as surgeon to the gynæcological ward of the hospital and he built up for himself a large operative and consulting practice in private. He attended the meetings of the Royal Medical and Chirurgical Society and of the Pathological Society during his early years with considerable assiduity and his contributions showed marked originality. He was amongst the first to advocate the performance of Littre's inguinal colostomy in preference to Amussat's lumbar operation, which was then in common use. But in later years he took no great part in advancing surgery, either by lecturing in the medical school or by undertaking any of the great public lectures at the Royal College of Surgeons.

" I knew nothing of his work as demonstrator of natomy because he had become surgical registrar efore I entered the hospital, but his teaching, like iat of his colleagues, Mr. A. E. Cumberbatch and Mr. V. J. Walsham, must have been good, for there were o failures at what we used to call " the first batch " t the Primary Examination. My personal recollec- ons begin with his teaching in the out-patient epartment, where he was thorough, painstaking, and omewhat of a martinet, for he insisted on regular and unctual attendance from those who elected to serve s his dressers. His teaching was Socratic and was nlivened by sharp showers of caustic wit descending ith equal impartiality on students and patients and elivered in a soft voice with a little click of the tongue hich was either copied from Sir William Lawrence or as an inherited Lawrence trait. I do not remember iat he had at any time an especial regard for isterian methods, at any rate, he did not operate nder the carbolic spray which was then in vogue.

" As a man of business Cripps showed himself articularly capable. Beginning life with very slender sources he early saw the capabilities of electrical iterprise and he gradually bought founders' shares in ie Metropolitan Electric Supply Company. A con- derable portion of the company was eventually urchased by the St. Marylebone Borough Council hen Cripps received the reward of his foresight, whilst the same time he remained as chairman of the iginal company. His knowledge of business was ways placed at the disposal of the College of urgeons whilst he was on the Council and for some ears he was a valued member of the Finance Com- ittee. His business habits sometimes made him a ttle exacting in the matter of fees, for he realised the alue of money and maintained that professional rvices were apt to be inadequately remunerated.

" Cripps was seen at his best as a host whether in s house in Stratford-place, at Abbotsford, or in later ears at Glendaruel in Argyllshire. He loved to have s house full of guests and that he might give the eatest pleasure to the greatest number of his friends was accustomed to invite each for a definite period. ll were welcome, alternative plans were made daily iat all might be amused, and the evenings were nlivened with pleasant talk interspersed with good usic. As he grew older the jibe and sarcasm of his ounger days remained, but the jibe had lost its tterness and the sarcasm had become more human. here remained the courteous host with the polished anners reminiscent of the family tradition of what as befitting a Gloucestershire gentleman."

FRANK STANLEY TINKER, M.B., B.C. Camb.

We regret to announce the death in Devonshire of r. Stanley Tinker. After qualifying in 1911, and olding resident appointments at the Liverpool oyal Infirmary, he was invalided to Switzerland in e spring of 1913 with signs of pulmonary tuber- losis. Having practically recovered after 18 months the Alps, a period which he utilised to make himself miliar with sanatorium treatment and the routine ork of a clinical laboratory, he returned to England take his Cambridge medical degree, and became in ccession school medical officer to the Surrey County ouncil, one of the Surrey county tuberculosis ficers, and medical superintendent of Crooksbury natorium, Farnham. He also translated Cornet's onograph on miliary tuberculosis, and was an active ember of the editorial board of *Tubercle*. At this ne he became interested in municipal workshops r tuberculous patients, and worked out a scheme r the post-sanatorium employment of the con- mptive ex-soldier. These qualifications procured m the appointment of medical superintendent at the arrowmore Hall Tuberculosis Colony, near Chester, here he proved an able administrator as well as nician. Unfortunately an attack of influenza lit up ain his old chest trouble, and he again sought health Switzerland, this time without avail. Tinker ll be missed in the circle of younger tuberculosis lministrators, among whom he was widely esteemed.

Correspondence.

"Audi alteram partem."

THE CENTENARY DINNER: AN INCORRECT RUMOUR.

To the Editor of The Lancet.

Sir,—Much to my surprise I have been informed that there will be no medical women present at The Lancet Centenary Dinner. Can this possibly be correct? I am, Sir, yours faithfully,

Nov. 13th, 1923. M.D.

⁂ It is entirely incorrect, and the circulation of this report has caused great annoyance. Not only are medical women expected, but many have already signified their intention of being present on Nov. 29th at the Hotel Victoria.—Ed. L.

AN IMPETUS IN THE EVOLUTION OF MONOGAMY.

To the Editor of The Lancet.

Sir,—There is no lack of testimony, explicit or implied, in the many articles which have recently appeared in the medical journals that gonorrhœa, whether occurring in the male or female, is a sterilising disease. That capacity to breed is much greater among 10,000 couples who have not suffered from gonorrhœa, whether singly or jointly, than amongst 10,000 who have so suffered, must be a self-evident deduction. This is a matter of massive tendency among large numbers of individuals, not of individual cases; though, of course, individual cases supply this conception of the great sterilising power of gonorrhœa.

One cannot fail to be struck by a condition complementary to gonorrhœal sterility in syphilitic destruction of infant life.

> " There is no disease which is so destructive to infant life . . . an army in numbers to represent the mortality of infant syphilis annually in England and Wales and in ordinary marching order four deep would reach from Aldgate Pump to the Marble Arch, and would take an hour passing any given point; 50 per cent. of syphilitic fœtuses are stillborn; 78 per cent. of those born alive die within the first year, most of the deaths occurring within the first week after birth: and of the remaining 22 per cent. many die in early childhood." (Mr. John Adams, F.R.C.S., M.A.B. annual report, 1922.)

Children which are not even conceived cannot have their teeth set on edge by the sour grape of a sterilising gonorrhœa. Further, since few syphilitic children survive as congenital or hereditary syphilitics but few can present any feature of dentition due to disastrous parental Bacchic feasting. Nature is really very benign in her deep and insistent workings.

Now, a batch of 10,000 syphilitics will contain a very much higher proportion of the persistently promiscuous or polygamous than will 10,000 non-syphilitics. I think this is axiomatic. Further, since a sheep dog produces pups which without any teaching run around a flock of sheep instead of at them, whereas an Irish terrier on first sight of a sheep will start worrying it, and since we have an aphorism, " like father, like son," and are not referring to the pimple on the nose but to deep-set mental characteristics which proclaim themselves in bodily action, there is not much necessity to drive home the argument of hereditary capacity. The inevitable deduction is that gonorrhœa and syphilis are benign and large factors in the evolution of that marital care which, according to Josephus, Moses enjoined on the Israelites,

> " As esteeming it a happy thing that men should be wise in the affairs of wedlock; and that it was profitable both to cities and families that children should be known to be genuine."

It is suggested that syphilis was introduced into Europe only about the year 1500. This, were it a fact, would still leave sufficient time up to date for an enormous impetus in the evolution by natural selection of the monogamous instinct. The statement quoted from the M.A.B. report points to the rapidity and force with which the selection goes on at present in a quite natural and comparatively benign way. The rapidity with which in Plymouth Harbour changes in the crab's carapace took place under a change of environment—namely, a little mud in the water—was well brought out by Prof. Weldon. Some such rapidity of effective action in England and Wales has taken place under syphilis, due allowance being made for the greater period of years of a generation in man and the longer period over which the influence has acted.

We are apt to be shocked by the statement on syphilitic infantile mortality, but its bearing on the problems of life as indicated above would seem to be essentially a factor for consideration whenever infant mortality is mooted. We may shrink from the consideration, but such a gesture would be unworthy.

I am, Sir, yours faithfully,

Gravesend, Nov. 12th, 1923. W. M. Willoughby.

PSYCHO-NEUROTIC SYMPTOMS IN MINERS' NYSTAGMUS.

To the Editor of The Lancet.

Sir,—The first and second reports of the Miners' Nystagmus Committee have not received the attention they deserve. The data collected show that the disease is costing the country £350,000 directly, and £1,000,000 indirectly. In these times an effort should be made to reduce this expenditure. In America, where no compensation is given, little is heard of incapacity due to nystagmus, or, indeed, of the existence of the disease. In Belgium the incidence remains stationary. The same apparently applies to France and Germany. Yet in Great Britain the incidence has increased at an alarming rate, and the cost in compensation has gone up from £13,000 in 1908 to £343,000 in 1920. The reports make it clear that this is due chiefly to the alteration in 1913 of the definition of the disease in the third schedule of the Workmen's Compensation Act, which made the presence of oscillation of the eyeballs unnecessary in the diagnosis. As a result, a large number of men became entitled to compensation whose incapacity was due to psycho-neurotic symptoms. "This group is the one which has increased the reported cases." One would have thought that the Committee would proceed at once to investigate the nature and origin of the psycho-neurosis, and to link it up with the physical signs, of which oscillation of the eyeballs is the chief. But one looks in vain for even a surmise that they may be connected. Does oscillation cause the neurosis, or does the latter induce the oscillation? Is oscillation merely a physical eccentricity, or is it an essential part of the whole abnormal state? An answer to these questions may save the country so much money that pressure should be brought to bear upon the Committee to clear up the mystery. "The standard of physical signs which is in vogue in this country for deciding whether any case should be certified as suffering from miners' nystagmus too readily admits psycho-neurotic cases to whom harm and not benefit accrues from compensation. A stricter standard based on physical signs should be adopted." The ambiguity is perplexing. Does it mean that *all* psycho-neurotic cases are harmed by compensation? Or does it mean that only certain cases are harmed? If the latter, what physical signs of the neurosis are to determine the issue? Photophobia and blinking of the eyelids are not peculiar to miners' nystagmus; they occur commonly in shell shock. The reports show that about a quarter of all underground workers have oscillation of the eyeballs. Severe cases refuse to stop work because they are more comfortable at work. One even plays cricket for his colliery. Would the Committee enforce retirement in these cases, or would they await the development of psycho-neurotic symptoms?

In the introduction to the second report, the Committee state that they "are continuing their work, and have some investigations in view which will deal further with the physiological problems involved." Physiology has done nothing for shell shock. Psychology has done much. Dr. W. H. R. Rivers pointed out the similarity of the symptoms in the war neuroses and miners' nystagmus. Since his death, psychopathology has not been represented in any way on the Committee. It seems reasonable to ask that an expert be appointed at once, having regard to the expenditure annually of a million of money in Great Britain as against nothing in America.

I am, Sir, yours faithfully,

Portsmouth, Nov. 2nd, 1923. W. Inman.

THE ALBUMINURIA OF PREGNANCY.

To the Editor of The Lancet.

Sir,—I have to thank Prof. Frank Cook for the reference, in his letter to The Lancet of Nov. 3rd, to my paper on Unilateral Œdema with Albuminuria. The whole subject of "unirenal" albuminuria is only beginning to receive attention, and it needs further investigation. Prof. Cook agrees with me that the procedure of catheterisation of the ureters cannot be carried out in all suspected cases, and the postural method of investigation adopted in my case may then give valuable information. But its exact significance has yet to be determined. In that case, it seemed to afford something very near to proof of the unilateral origin of the albuminuria. But the inference that the albumin was coming from the left kidney depended upon the presence of left-sided œdema, and also upon the similar case recorded by Ehrmann. In cases in which there is no such œdema it would be difficult from postural observations alone to decide from which of the two kidneys the albumin arises. I would therefore venture to suggest that in all cases in which catheterisation of the ureters demonstrates the origin of an albuminuria from one only of the two kidneys, the observation should be supplemented by postural investigations as suggested in my paper. By this means it might be possible to gain a positive knowledge of the significance of the results so obtained, and eventually perhaps to do away with the necessity of catheterising the ureters.

It is worth noting that in my case standing vertically upright produced practically no increase in the amount of albumin present beforehand, and it may interest Prof. Cook to know that the same was true of a small number of cases of apparently harmless albuminuria in pregnant women kindly placed at my disposal by my colleague, Prof. Thomas Wilson. But in all the cases of orthostatic albuminuria, recorded in my paper in the *Quarterly Journal of Medicine*, the ten minutes' standing test produced a marked and immediate response, except during a period of diuresis. Yet recent observations show that in orthostatic albuminuria the albumin, at any rate sometimes comes from one kidney only. The effect of upright standing is therefore another point that might be worth investigating, if Prof. Cook has the opportunity.

I agree with Mr. R. H. Paramore in his contention that the albuminuria of pregnancy is not likely to be explained on mechanical grounds to any great extent or at any rate that the explanation will be found to apply only to a limited group of cases, of which Prof. Cook's first case is clearly an example. I believe the mechanical cause is too readily invoked as an explanation even of albuminuria of immediately postural origin, and that further investigation will show that many of these cases have a renal pathology. That there are two very different conditions at present included in the group of cases of so-called orthostatic albuminuria I am very sure, but the grounds for their distinction have not yet, I think been fully ascertained.

I am, Sir, yours faithfully,

Birmingham, Nov. 10th, 1923. Jas. W. Russell.

NASAL SINUSITIS IN PHTHISIS.

To the Editor of THE LANCET.

SIR,—Dr. A. L. Yates's paper on the simulation of hthisis by nasal sinusitis is of the useful type that ecognises in addition the *complication* of the first by he second. One or two points call for comment. irstly, there is undoubtedly important literature rior to 1916. Volpillac in an 1898 thesis is cited as aving published cases where treatment of the axillary sinus cured apparent phthisis. Certainly he next year Friedrich[1] mentioned obstinate bron- hitis from sinusitis. The best early paper is, how- ver, that of Du Magny, the first to note the apical tuation of the pulmonary signs, which of course akes confusion with phthisis easy. He did not xplain why the apex especially should suffer, but 1917[2] I suggested this was because of the deficient xpulsive action obtaining at the pulmonary apex, y reason of its extra-thoracic position and the well- nown anatomical peculiarity of its bronchi, factors voked to explain an allied non-tuberculous condi- on. Krönig's apical collapse-induration, that, how- ver, results from dust, not pus, inhalation. Thus e pus from above would invade the lung pretty venly, but be coughed up again from all parts etter than from the apex. Du Magny[3] said that all ppurations of the upper respiratory passages, cluding otitis media, were thus dangerous, and ght years later a pupil of his gave, in the *Revue de oure*, 62 observations in support. Before this, ambert Lack and Mackie had both stated that scharges from an antral empyema might cause gns and symptoms of active phthisis, which cleared p under nasal treatment.

Secondly, Dr. Yates states that posterior ethmoidal d sphenoidal sinusitis had not been met with cept in conjunction with other sinusitis, and that ontal and anterior ethmoidal sinusitis do not mplicate the diagnosis of chest conditions. How- er, on p. 137 of my book, already mentioned, a se is recorded of double, almost exclusively right- ded, sphenoidal sinusitis that I met with at a nsumption hospital. I sent it to Golden-square, here the right sphenoidal sinus was operated on. ven years later no pulmonary or nasal sym- oms. Further, D. McKenzie[4] attributed purulent hmoiditis to ten out of 102 out-patients at a nsumption hospital. I do not want to quote yself again, but if he will do me the honour look he will find evidence of frontal and of hmoidal sinusitis both in patients wrongly diag- sed phthisical, as well as in sputum-positive tients.

Lastly, he will find, too, I think, that "certain nditions so regularly found in the nose and throat patients suffering from pulmonary tuberculosis hen neither laryngeal ulceration nor sinusitis are esent" must be regarded, *not* as results of this sease, but as contributory causes. So well known laryngologist as Moure, of Bordeaux, makes of em a separate non-tuberculous nasal affection, eceding the consumption, constitutional, and even reditary. Too schematic a generalisation, no ubt; but quite certainly nasal obstruction, intra- sal atrophy, and post-nasal catarrh are rife in nsumptives; sinusitis on the whole is vastly less mmon. In conclusion, I would deprecate any cking of nasal sinuses in consumptives with anti- ptics. If, as often, operation is contra-indicated, ntle nasal syringing with an alkaline collunarium, ich the patient learns very easily to do for himself, all that is necessary.

I am, Sir, yours faithfully,

Barnsley, Nov. 3rd, 1923. W. C. RIVERS.

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[1] Rhinologie, Laryngologie, u. Otologie in ihrer Bedeutung f. d. g. Med., Leipzig, p. 13.

[2] Three Clinical Studies in Tuberculous Predisposition. ndon: Allen and Unwin.

[3] Bulletin Médicale, July 3rd, 1901.

[4] Journal of Laryngology, May–July, 1916.

THE LONDON FEVER HOSPITAL.

To the Editor of THE LANCET.

SIR,—The administration and maintenance of the London Fever Hospital, which was the subject of an annotation in THE LANCET of Nov. 10th, presents serious problems to its committee and staff, problems which are largely due to the special nature of the diseases with which the institution has to deal. A personnel which is adequate when the hospital is full is expensive to maintain over periods when the incidence of fevers is slight and at such times there is always the temptation to skeletonise the staff on the ground of economy. Experience has proved that economies of this nature are more than a mistake, they are highly dangerous. The specially trained staff of a fever hospital cannot be disbanded and replaced at a short notice. The danger of an imperfectly trained staff needs no emphasis. It takes time for the basic principles of rigid medical asepsis to become so ingrained that they are part of a nurse's second nature. Moreover newly-imported nurses are very apt to fall victims to the disease they are nursing and themselves to fill up beds which would be available for other cases. Further, from the very nature of its work the hospital must maintain its own laundry and disinfector with trained attendants who can be relied upon to understand their individual responsibilities. It follows that expenses of maintenance must continue to be high although patients dwindle and receipts fall. The pressing problem is to tide over the quiet periods without impairing the efficiency of the hospital. Your annotation is timely and more than welcome. There must be at all times in London and its suburbs sporadic cases of infectious disease, for which the accommodation offered by the London Fever Hospital is particularly adapted and a knowledge of its existence and availability should prove a boon to those who have to deal with such emergencies.

I am, Sir, yours faithfully,

CHARLES R. BOX,
Senior Physician, London Fever Hospital.

Nov. 12th, 1923.

PRIVATE WARDS IN LONDON HOSPITALS.

To the Editor of THE LANCET.

SIR,—May I draw your attention to the fact that this hospital has 25 private wards which are allocated according to the medical needs of the patients who are expected to contribute £3 3*s.* per week, but smaller fees are accepted? The patients are placed under the care of the honorary medical staff who do not receive fees, and the £3 3*s.* represents the total liability of the patient.

I am, Sir, yours faithfully,

H. W. BURLEIGH,
Secretary and General Superintendent,
Hospital for Epilepsy and Paralysis.

Maida Vale, W., Nov. 9th, 1923.

UNIVERSITY OF MANCHESTER.—Lord Crawford was on Nov. 10th installed as Chancellor of the University. Honorary degrees as Doctors of Law were conferred on Dr. J. G. Adami and Sir Arthur Keith.

LANCASHIRE AND THE SPAHLINGER TREATMENT.—The Ministry of Health has withheld permission from the Lancashire Insurance Committee to carry out an investigation into the best way of making this treatment effective in their area. The original proposal of partly subsidising an existing institution fell through owing to technical difficulties. It was then proposed that a sum of £1000 be used to make a preliminary investigation into the practical possibilities of the treatment, but the Ministry does not consider that there is anything within the scope of the Public Health Act allowing the Lancashire Committee to make such an investigation as is proposed. Another suggestion was made that the Minister of Health might exercise certain special powers conferred on him by a schedule in the Act, but the Minister declines to exercise these special powers.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The amended order of examinations for Medical and Surgical Degrees, to be held in December, 1923, is as follows : Of the Third Examination, Part I. (Surgery and Midwifery and Gynæcology) will be held from Dec. 11th to 15th ; Part II. (Principles and Practice of Physic, and Pathology and Pharmacology) on Dec. 12th, 13th, 17th, 18th, 19th, and 20th. The M.Ch. Examination will be held on Dec. 11th, 14th, and 15th.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—An ordinary Council meeting was held on Nov. 8th, with Sir John Bland-Sutton in the chair.—A report was read from the Court of Examiners respecting candidates found qualified for the diploma of Membership, and diplomas were awarded to 170 candidates mentioned in the report.—A report was read from the secretary respecting a candidate, Sybil Grace Mocatta, found qualified for the diploma of Fellow, and a diploma of Fellowship was awarded her.—Dr. J. A. Ormerod was re-elected a member of the Committee of Management.—Mr. C. H. Fagge was appointed a representative of the College to serve on the Council of the Fellowship of Medicine and Post-Graduate Medical Association for the ensuing year.—Mr. Raymond Johnson was appointed as representative of the College on the Managing Committee of the Schiff Home of Recovery, on the resignation of Sir Herbert Waterhouse.—The President announced that he had granted the use of the lecture theatre for five lectures on the Influence of Environment on the Life of Bacteria, by Mr. F. W. Twort, superintendent of the Brown Animal Sanatory Institution, at 4 P.M., on Dec. 11th, 13th, 17th, 18th, and 19th.—The secretary reported the notices of motion which have been given for the annual meeting of Fellows and Members on Nov. 15th.—The President reported that Mr. Warren Low's term of office on the Court of Examiners would expire on Dec. 12th next, and that the vacancy thus occasioned would be filled up at the ordinary Council on Dec. 13th. Mr. Low is eligible for re-election.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the annual meeting of the Faculty on Nov. 5th the following office-bearers were elected :—

President : Dr. Thomas K. Munro. Visitor : Mr. J. H. Pringle. Treasurer : Mr. J. H. MacDonald. Honorary Librarian : Dr. E. H. L. Oliphant. Councillors : The President, ex officio ; the Visitor, ex officio ; the Treasurer, ex officio : the Honorary Librarian, ex officio ; Dr. James A. Adams, as Representative to the General Medical Council, ex officio ; Dr. A. K. Chalmers, Mr. J. Mason Noble, Sir Kennedy Dalziel, Dr. A. Freeland Fergus, Mr. A. E. Maylard, Dr. R. M. Buchanan.

Examiners for Licence, for the Fellowship, for the Diploma in Public Health, and for the Dental Board were appointed.

At the same meeting the following were admitted (after examination) as Fellows of Faculty :—

George Frederick Andeen, Prabodh Chandra Banerjee, I.M.S., and John Hare, R.A.M.C.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—The annual general meeting will be held at 11, Chandos-street, Cavendish-square, W., on Nov. 29th, at 5.15 P.M., when Dr. H. Crichton Miller and Dr. H. C. Cameron will introduce a discussion on the Nervous Child.

CHELSEA CLINICAL SOCIETY.—The next meeting of the Society will take place at the Club Room, St. George's Hospital, on Nov. 20th, at 8.30 P.M. A discussion on the Treatment of the Failing Heart will be opened by Sir Sydney Russell-Wells.

ROYAL SOCIETY OF MEDICINE.—Sir Jagadis Bose, F.R.S., will deliver a lecture on Assimilation and Circulation in Plants on Dec. 6th, at 5.30 P.M. It will be illustrated on the epidiascope, and the lecturer will exhibit his apparatus in operation. The chair will be taken by the President of the Society, Sir William Hale-White.

HUNTERIAN SOCIETY.—A meeting will be held at Cutlers' Hall, Warwick-lane, London, E.C., on Monday, Nov. 19th, at 8.45 P.M., when Mr. W. B. Maxwell and Dr. T. B. Hyslop will open a discussion on Medicine and Letters. It is hoped that, amongst others, the following will take part in the discussion : Sir Anthony Hope Hawkins, Sir D'Arcy Power, Mr. Morley Roberts, Dr. Norman, and Mr. Johnson Abraham.

ABERDEEN UNIVERSITY CLUB, LONDON.—The bi-annual dinner will be held at Gatti's Restaurant on Nov. 27th at 7.30 P.M., with Lord Elphinstone in the chair and Prof. G. Milligan, D.D., as principal guest. Any past or present graduates wishing to attend the dinner should communicate with Dr. Anstruther Milligan, at 11, Upper Brook-street, London, W. 1.

CHADWICK PUBLIC LECTURE.—A public lectur entitled Remedial Hygiene—Health and the Hospital wil be given by Major Harry Barnes, in the Lecture Room of the Royal Society of Arts, John-street, Adelphi, W.C., o Friday, Nov. 23rd, at 8 P.M. Sir William J. Collins, M.D., will occupy the chair.

MEDICO-LEGAL SOCIETY.—The annual dinner o the Society will be held at the Holborn Restaurant, London W.C., on Friday, Dec. 14th, at 7 for 7.15 P.M., Lord Justic Atkin, the President, in the chair. The price of dinner i 14*s.* 6*d.*, exclusive of wines. All communications should b made to Mr. Ernest Goddard, Hon. Sec., 3, South-square Gray's Inn, London, W.C. 1.

A meeting of the Society will be held at 11, Chandos street, Cavendish-square, London, W., on Nov. 20th, a 8.30 P.M., when a paper will be read by Dr. Godfrey Carte entitled Gas Poisoning as Alleged Cause in a Case of Murde which will be followed by a discussion.

GLASGOW UNIVERSITY : *The Samson Gemmell Chai* At a special meeting of the University Court, preside over by the Lord Rector, the draft ordinance for the establishment of the Samson Gemmell Chair in Medical Pediatrics wa approved. The chair is to be associated with the Roya Hospital for Sick Children.

Students' Welfare Bazaar.—The success of this bazaar held in the University on Nov. 8th to 10th, may be judge from the total sum already collected—£21,530. Som hundred pounds are still to be included in the grand total

GLASGOW ROYAL MATERNITY HOSPITAL.—At meeting of the Glasgow Women Citizens' Associatio Councillor Mrs. Baird Smith spoke on the subject of th Glasgow Royal Maternity Hospital. In urging the claim of the institution, she said there was comfortable accommodation for 145 patients. Last year 3641 patients wer admitted, and 42,614 were visited in the district. Ther should be added to the hospital a network of maternit homes, in which working women might obtain the perio of rest so valuable after childbirth.

THE LATE DR. FRANK WILDERS MAWBY.—D F. W. Mawby died, after a brief illness, at his home in Littl port, Ely, Cambs, on Sept. 15th, aged 60. Born in Lincol shire, he was educated at Christ's Hospital, and qualifie L.S.A. in 1894 at Guy's Hospital. For the past 30 year Dr. Mawby was in practice at Littleport, where he als held appointments as medical officer of Littleport an Redmere District, Ely Union, and as certifying facto surgeon. His death is regretted by a wide circle of frien in Littleport, for both privately and professionally he wa held in high esteem.

CANADIAN SOCIAL HYGIENE COUNCIL.—A repor of the Medical Committee of the Canadian Social Hygien Council on the Standardisation of the Diagnosis and Treatment of Venereal Diseases has recently been issued by th Department of Public Health at Ottawa. The repor represents the work of a committee of 35 prominent men an women physicians acting under the chairmanship of D E. E. King of Toronto. Final editing of their findings an recommendations was done by Dr. J. J. Heagerty, Chief c the Division of Venereal Disease Control in the Dominio Department of Health, and the report, which is to b widely circulated among medical men in Canada, include the following sections and subsections :—

Medical Research and Laboratory Questions, with subsection dealing with Licensing of Men doing Wassermann Tests an Standardisation of the Methods of Making Wassermann Tests Diagnostic Tests in Syphilis by Demonstration of Treponem Pallidum ; Significance of Wassermann Reaction ; Negativ Wassermann Reaction, with subsections with Precautionar Measures ; Wassermann Tests in Connexion with the Treatmen of Syphilis and Especially as an Evidence of Cure ; Treatmen of Syphilis and Relative Value of Arsenicals and Non-Arsenical with subsection, Eligibility of Marriage ; Minimum Requirements of Treatment ; Treatment of Syphilis, with subsectio dealing with Early Primary Cases, Dark Field ; Wasserman Positive, Secondary, Tertiary, and Latent Syphilis ; Hereditar Syphilis ; Early Preventive Treatment against Syphilis Gonorrhœa ; Treatment of Acute Urethritis ; Complications Gonorrhœa in the Male ; Chronic Gonorrhœa ; Pelvic Gonorrhœ with subsections on Treatment and Standard of Cure ; Treatment of Chronic Gonorrhœa, with subsections on Clinical Examination, Bougie à Boule, Urethroscopy, Blood Examinatio Treatment, and Standard of Cure ; Gonorrhœa in the Adul Female ; Treatment of Gonorrhœa in the Female ; Diagnosis Gonorrhœa in Children, with subsections on its Treatment, th Rationale, Complications, and the Standard of Cure of Vulvo Vaginitis in Children.

The report recommends that "all laboratories, includin university laboratories, doing Wassermann tests, shall b licensed by and under the supervision of the Provincia Board of Health," and urges "private, university, hospita municipal, and provincial laboratories, in the use of thes tests, to adopt recognised methods, so as to approach uniform results for the purposes of comparative study." The personnel of the Medical Committee who prepared the report is as follows :—

Chairman : Dr. E. E. King. Secretary : Dr. C. H. Archibald. Members : Dr. Gordon Bates, Dr. Kendal Bates, Dr. Noble Black, Dr. W. Colling, Dr. M. A. Cox, Dr. H. C. Cruickshank, Dr. H. K. Detweiler, Dr. E. C. Dixon, Dr. W. E. Ferguson, Dr. A. G. Fleming, Dr. Edna Guest, Dr. C. H. Hair, Dr. E. B. Hardy, Dr. F. W. Hassard, Dr. Hewett, Dr G. Howland, Dr. W. Jones, Dr. W. W. Lailey, Dr. Lillian Langstaffe, Dr. J. C. McClelland, Dr. R. A. McComb, Dr. Alex McKay, Dr. F. W. Marlow, Dr. E. A. Morgan, Dr. R. W. Naylor, Dr. H. E. Paul, Dr. Robin Pearse, Dr. G. W. Ross, Dr. Geo. S. Strathy, Dr. E. J. Trow, Dr. W. T. Williams, and Dr. A. I. Willinsky.

The Canadian Social Hygiene Council will follow this report immediately by another on the same subject, prepared specially for the instruction of nurses and for use in all training schools for nurses throughout Canada.

LONDON HOSPITAL MEDICAL COLLEGE. — The Schorstein Memorial Lecture will be delivered by Dr. Gordon Holmes on Dec. 3rd, at 4.15 P.M., in the anatomical theatre of the College. The subject will be Some Symptoms of Cerebral Irritation.

UNIVERSITY COLLEGE HOSPITAL.—A festival dinner will be held at the Savoy Hotel on Nov. 20th, at 7.30 P.M., for the purpose of inaugurating a campaign to raise for University College Hospital a capital sum of £500,000. This campaign is a direct result of, and is necessitated by, the gift made for the purposes of medical education by the Rockefeller Foundation of New York. The Rockefeller gift is to be devoted exclusively to purposes of medical education and research, and the Rockefeller Foundation in making the gift indicated clearly that the maintenance of the additional beds so provided was the responsibility of the British people. Among the speakers at the dinner will be Mr. Winston Churchill. Prince Henry will preside, and will announce at the dinner a list of the subscriptions received towards this special appeal.

THE PASTEUR INSTITUTE OF SOUTHERN INDIA, COONOOR.—In the annual report of the Institute, the director, Lieut.-Colonel J. W. Cornwall, I.M.S., states that the number of patients who underwent a full course of treatment during the year in the Institute was 3375, a decrease of 96 on the previous year's number. The fall in the number was due to the gradual introduction of the scheme for the issue of anti-rabic vaccine to Government headquarter hospitals in the Presidency. With the sanction of the Government it was decided to issue carbolised anti-rabic vaccine to different centres in the Presidency so that persons bitten by animals suspected to be rabid might be treated locally and saved long railway journeys to Coonoor with all the attendant expenses. The scheme is a tentative one, and treatment at the Pasteur Institute is still open to anyone who desires it and can go to Coonoor at his own expense. It is too soon, the report states, to comment on the working of the new scheme. Possibly the chief drawback will be that many persons who are being treated near their homes will not have patience to go through the full course of treatment. A pamphlet entitled Notes on Rabies for Medical Officers, was sent to the superintendents of all the headquarters hospitals, which contained all necessary information under the following headings : (1) The possibilities of infection with the virus of rabies ; (2) methods of dealing with wounds inflicted by rabid animals ; (3) how to deal with a dog which has bitten one or more persons ; (4) indications for anti-rabic treatment ; (5) care of patients during and after treatment ; (6) how to give the injections ; (7) reactions, local and systemic. The total number of persons who received anti-rabic treatment during the year was 4623, distributed between the following institutions : at the Pasteur Institute, Coonoor, 3375 ; at Government headquarter hospitals, 1248.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, NOV. 13TH.

PARLIAMENT reassembled on Nov. 13th after the summer recess.

Panel Doctors' Fees.

Sir KINGSLEY WOOD asked the Minister of Health whether he could state the present position of the negotiations with the doctors on the panel lists concerning their duties and remuneration ; and whether he had conferred with the approved societies in relation to such matters.—Sir W. JOYNSON-HICKS said : I have now made two alternative offers to the doctors which will be considered by the Panel Conference to-morrow. As regards the second part of the question, for some months past a series of consultations have been taking place with the Approved Societies' Consultative Councils of England and Scotland, and, in addition, conferences have been held with representatives of the various important groups of approved societies in Great Britain in relation to both duties and remuneration.

Sir KINGSLEY WOOD : What is the additional sum involved in the offer that has been made to the medical profession, and from what source does the right hon. gentleman intend to obtain payment ?—Sir W. JOYNSON-HICKS : I am not prepared to make any statement until I get the reply of the doctors, which I hope will be to-morrow. If my hon. friend will put down a further question for Thursday I will be prepared to answer it.

Mr. SEXTON : May I ask the right hon. gentleman whether he anticipates that he will be able to make any agreement by the end of this week ?—Sir W. JOYNSON-HICKS : I hope to be in a position to make an agreement before the end of this week.

Major MACKENZIE WOOD : Would the right hon. gentleman consider the advisability of publishing an actuarial report on the new proposals ?—Sir W. JOYNSON-HICKS : If the offer I have made is accepted, I propose to lay a White Paper on the whole subject, which will include an actuarial report.

Sir W. R. ADKINS : Is it an agreement assented to by the approved societies ?—Sir W. JOYNSON-HICKS : No, Sir. I, as Minister of Health, after fully considering the whole matter, have made alternative proposals to the doctors. If either of these proposals is accepted legislation will be necessary, and I hope to have the responsibility of bringing in the legislation and submitting it to the House.

Dissolution of Parliament.

Mr. BALDWIN announced that Parliament would be dissolved on Friday, Nov. 16th.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Nov. 20th.

PATHOLOGY : at 8.30 P.M.
Communications :
Dr. E. E. Atkin : Cultural Characteristics of the Different Types of Meningococci.
Dr. O. Heath : The Meaning of Fever ; illustrated from Typhoid.
Baron Nopcsa : Evolution and Disease : based on Osteological Changes in Man and Fossil Animals.
Dr. J. A. Arkwright : The Characteristics of Certain Cultures Sensitive to Bacteriophage.

Wednesday, Nov. 21st.

HISTORY OF MEDICINE : at 5 P.M.
Paper :
Mr. Percy E. Newberry : Egyptian Medicine.

Friday, Nov. 23rd.

STUDY OF DISEASE IN CHILDREN : at 5 P.M. (Cases at 4.30 P.M.)
Cases and Specimens :
Dr. J. D. Rolleston : Specimen of Hair-ball of the Stomach.
Dr. Benjamin (for Dr. Robert Hutchison) : Case of Precocious Puberty.
Dr. W. E. Robinson : Lymphangioma of the Foot.
Dr. C. Worster-Drought : Case of Progressive Neural Macular Atrophy affecting the Upper Limbs.
Dr. Norah Schuster and Dr. Donald Paterson : Specimen from a case of Paroxysmal Tachycardia in an Infant with Gross Malformation of the Heart.

EPIDEMIOLOGY : at 8 P.M.
Paper :
Dr. P. G. Stock : Some Considerations on the Use of Hydrogen Cyanide and Allied Substances with special reference to International Preventive Medicine. (Illustrated.)

HUNTERIAN SOCIETY.
MONDAY, Nov. 19th.—(At Cutlers' Hall, London.) Mr. W. B. Maxwell and Dr T. B. Hyslop : Medicine and Letters. To be followed by a discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Nov. 19th.—10 a.m., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 p.m., Mr. Addison: Surgical Wards.

Tuesday.—10 a.m., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Dr. Burrell: Chest Cases. 2 p.m., Mr. Banks-Davis: Throat, Nose, and Ear Dept.

Wednesday.—10 a.m., Dr. Saunders: Medical Diseases of Children 12.15 p.m., Dr. Burnford: Medical Pathology. 2.30 p.m., Mr. Donald Armour: Surgical Wards.

Thursday.—10 a.m., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 p.m., Mr. MacDonald: Genito-Urinary Dept.

Friday.—11 a.m., Dr. MacDougal: Electrical Dept. 12 noon, Mr. Endean: Venereal Diseases. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Medical Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: October–November, 1923.

Clinical Lectures and Demonstrations.

Monday, Nov. 19th.—2 p.m., Out-patient Clinic: Dr. Hinds Howell. 3.30 p.m., Papillœdema: Mr. Leslie Paton.

Tuesday, Nov. 20th.—2 p.m., Out-patient Clinic: Dr. Grainger Stewart. 3.30 p.m., Tumours of Spinal Cord: Mr. Armour.

Thursday, Nov. 22nd.—2 p.m., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 p.m., Electrical Testing of Muscles: Dr. Bailey.

Friday, Nov. 23rd.—2 p.m., Out-patient Clinic: Dr. Gordon Holmes. 3.30 p.m., Demonstration of Physical Exercises in Exercise Room.

Course of Lectures and Demonstrations on Neuro-Pathology.

Monday, Nov. 19th.—12 noon, Reactionary Changes in Central Nervous System, I.: Dr. J. Godwin Greenfield.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

Any part of the Course may be taken separately. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

C. M. Hinds Howell, Dean of Medical School.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

Thursday, Nov. 22nd.—5 p.m., Mr. A. W. Bourne: The Treatment of Severe Forms of Puerperal Infection.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Nov. 22nd.—4 p.m., Mr. Addison: Tuberculosis of Spine.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Nov. 20th.—5 p.m., Dr. J. M. H. MacLeod: Bullous Formation and Diseases from the Pathological Side.

Thursday.—5 p.m., Dr. W. Griffith: Erythemato-squamous Dermatoses.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

Wednesday, Nov. 21st.—4 p.m., Dr. Saleeby: Sunlight and Disease.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Wednesday, Nov 21st.—6 p.m., Fourth Lecture, Sir Maurice Craig: Habit, Adaptation.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES.

(At 3.30 p.m. each day.)

Monday, Nov. 19th.—(At the Children's Hospital.) Mr. Morrison: Surgical Tuberculosis.

Tuesday.—(At the Southern Hospital.) Dr. Capon: Cardiac Disease in Children.

Wednesday.—(At the Northern Hospital.) Dr. Stopford-Taylor: Early Diagnosis and Treatment in Venereal Disease.

Thursday.—(At the Stanley Hospital.) Dr. Oram: Radiological Examination of the Urinary Tract.

Friday.—(At the Royal Infirmary.) Dr. Matthews: Medical Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

Tuesday, Nov. 20th.—4.15 p.m., Mr. J. P. Buckley: Right-sided Abdominal Pain.

Friday.—4.10 p.m., Prof. J. S. B. Stopford: The Sensory Pathway.

ANCOATS HOSPITAL.

(Special Course on Surgical Tuberculosis.)

Thursday, Nov. 22nd.—4.30 p.m., Mr. P. G. McEvedy: Abdominal Tuberculosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.

Friday, Nov. 16th.—3.30 p.m. (At the Royal Hospital.) Dr. Wilkinson: Some Ear Emergencies.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

Friday, Nov. 23rd.—(At Boscombe.) Dr. G. Hadfield: Choice of Pathological Methods in Diagnosis.

Appointments.

Cave, P. N., M.D. Oxf., M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed Medical Officer of Health to the Bromley R.D.C.

St. Thomas's Hospital: Dyson, A. D., M.R.C.S., L.R.C.P. Lond., Murrell, E. B., M.R.C.S., L.R.C.P. Lond., Cooper, G. K., M.B., B.Ch. Camb., Palmer, H. M., M.R.C.S., L.R.C.P. Lond., Lautré, M. A., M.R.C.S., L.R.C.P. Lond., Lupton, C. A., M.R.C.S., L.R.C.P. Lond., Briggs, T. F., M.R.C.S., L.R.C.P. Lond., and Williams, L. G., M.R.C.S., L.R.C.P. Lond., Casualty Officers and Resident Anæsthetists. Story, A. G., M.R.C.S., L.R.C.P. Lond., Cole, L. B., B.A., M.B., B.Ch. Camb., Gibson, C. P. R., M.R.C.S., L.R.C.P. Lond., and Fuller, C. B. S., M.B., B.Ch. Camb., Resident House Physicians. Smalley, L., M.R.C.S., L.R.C.P. Lond., Resident House Physician for Children. Sudbury, F. B., M.R.C.S., L.R.C.P. Lond., Davies, D. A., M.R.C.S., L.R.C.P. Lond., Hughes, K. E. A., M.R.C.S., L.R.C.P. Lond., and Crockford, A. L., M.B., B.Ch. Camb., Resident House Surgeons. Wilkinson, M. C., M.R.C.S., L.R.C.P. Lond., Resident Orthopædic House Surgeon. Kies, J. P., M.R.C.S., L.R.C.P. Lond., and Walford, A. S. H., M.B., B.Ch. Camb., Resident House Surgeons for Ear, Nose, and Throat. Morrison, R. G., M.R.C.S., L.R.C.P. Lond., Senior Obstetric House Physician. Allen, H. S., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Physician. Doggart, J. H., M.R.C.S., L.R.C.P. Lond., Senior Ophthalmic House Surgeon. Penman, G. G., M.R.C.S., L.R.C.P. Lond., Junior Ophthalmic House Surgeon. Cavenagh, J. B., M.B., B.Ch. Oxon., Neilson, D. F. A., F.R.C.S. Eng., Bardsley, P. E., M.R.C.S., L.R.C.P. Lond., Jones, B. H., M.R.C.S., L.R.C.P. Lond., Pearce, T. V., M.R.C.S., L.R.C.P. Lond., Facey, R. V., M.R.C.S., L.R.C.P. Lond., Gautier-Smith, C. E., M.R.C.S., L.R.C.P. Lond., Farquharson, J. L., M.R.C.S., L.R.C.P. Lond., Marriner, H. I., F.R.C.S. Edin., Battson, A. A., M.R.C.S., L.R.C.P. Lond., Yates, H., M.R.C.S., L.R.C.P. Lond., Farquharson, S., M.R.C.S., L.R.C.P. Lond., Metcalfe, G. A., M.R.C.S., L.R.C.P. Lond., Turney, H. F., M.R.C.S., L.R.C.P. Lond., Webb-Peploe, M. H., M.R.C.S., L.R.C.P. Lond., Hope-Simpson, J. W., M.R.C.S., L.R.C.P. Lond., Walker, E. G. L., M.R.C.S., L.R.C.P. Lond., Jeffery, A. L. P., M.R.C.S., L.R.C.P. Lond., Stevens, A. L. B., M.B., B.Ch. Oxf., Alden, J. W., M.R.C.S., L.R.C.P. Lond., Pulvertaft, R. J. V., M.R.C.S., L.R.C.P. Lond., Franklin, C. A. H., M.R.C.S., L.R.C.P. Lond., Robson, T., M.R.C.S., L.R.C.P. Lond., Halliwell, C. C., M.R.C.S., L.R.C.P. Lond., Smith, N. R., M.R.C.S., L.R.C.P. Lond., Rickman, J., M.B., B.Ch. Camb., and Lockhart, L. P., M.R.C.S., L.R.C.P. Lond., Clinical Assistants.

Manchester Royal Infirmary: Kletz, N., M.B., Ch.B. Manch., M.R.C.P. Lond., Senior Medical Registrar; Hickson, S. K., M.B., Ch.B. Manch., Second Medical Registrar; Newell, R. L., M.D. Manch., F.R.C.S. Eng., Surgical Tutor; Smith, E. P., M.B., Ch.B. Manch., Resident Medical Officer at the Central Branch; Mills, N., M.B., Ch.B. Manch., Assistant Resident Medical Officer at the Central Branch; Thomas, G., M.Sc. Manch., Second Assistant in the Clinical Laboratory.

Surgeons under the Factory and Workshop Acts: Adam, J. R. M.B., Ch.B. Edin., D.P.H. (Kirkwall); Harvey, A. G., M.D., B.Ch. Camb., L.R.C.P. Lond., M.R.C.S. (Wirksworth).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne Union.—Chief Res. M.O. £500.

Birmingham and Midland Eye Hospital, Church-street.—Res. Surg. O. £150.

British Honduras.—Asst. M.O. $2430.

Bury County Borough.—Asst. M.O.H., &c. £600.

Cambridge, Addenbrooke's Hospital.—H.P. £130.

Dreadnought Hospital, Greenwich.—H.S. £150.

Edinburgh Royal Infirmary.—Supt. £700.

Evelina Hospital for Children, Southwark, S.E.—H.P. £160. Anæsthetist. 25 guineas.

Federated Malay States Hospitals.—Radiologist. £840.
Gravesend Hospital.—Jun. H.S. £100.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Dentist.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. £50.
Huddersfield, Storthes Hall Ministry of Pensions Mental Hospital.—Asst. Med. Supt. £850.
Liverpool Royal Infirmary.—Hon. Asst. Phys.
London County Mental Hospital Service.—Seventh Asst. M.O. £432.
London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £150.
Manchester, Ancoats Hospital.—H.S. £100.
Manchester Royal Infirmary, Massage and Electrical Depts.—Asst. M.O. £100.
Manchester, St. Mary's Hospitals for Women and Children.—Two H.S.'s. Each £50.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Anæsthetist.
Metropolitan Hospital, Kingsland-road, E—Asst P.
Newport, Isle of Wight, County Mental Hospital.—Asst. M.O. £300.
Norwich, Norfolk and Norwich Hospital.—Hon. Asst. S.
Pontefract General Infirmary and Dispensary.—Res. Surg. O. £400.
Preston, Lancs, County Mental Hospital, Whittingham.—Locum Tenens M.O. £8 8s. weekly.
Queen Mary's Hospital for the East End, Stratford, E.—Anæsthetist. 50 guineas.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Asst. Cas. H.S. £100.
Royal Free Hospital, Gray's Inn-road, W.C.—Med. Reg., Surg. Reg., and Gyn. Reg. Each £250. Cas. O. £100. H.S. (M.M.S.) and Obstet. Asst. £50 each. Also H.P., H.S., Asst. Cas. O., and Obstet. H.S.
Royal Northern Hospital, Holloway, N.—Asst. Radiologist. £150. Also Phys.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. and H.S. Each £100.
St. Albans City.—M.O.H., &c. £900.
St. Pancras Hospital and House, King's-road, N.W.—Jun. Asst. M.O. £350.
Sheffield, Jessop Hospital for Women.—Sen. Res. O. £250. Also Two Asst. H.S.'s. Each £100.
Southport General Infirmary.—Hon. Aural Surgeon.
Training Ship "Exmouth" (off Grays, Essex).—Visiting M.O. £250.
Union of South Africa Govt.—Asst. P.'s. £460.
University of London.—University Readership. £500.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Hon. Asst. S. 100 guineas.
West London Hospital, Hammersmith-road, W.—Hon. Asst. S. to Throat, Nose, and Ear Dept.
Willesden General Hospital, Harlesden-road, N.W.—H.S. £100.

Births, Marriages, and Deaths.

BIRTHS.

Heslop.—On Nov. 1st, at Stone Field, Kidbrook-grove, Blackheath, the wife of Major A. H. Heslop, D.S.O., O.B.E., F.R.C.S. Eng., R.A.M.C., of a daughter.

Higgins.—On November 6th, at 7, St. George's-terrace, Regent's Park, the wife of T. Twistington Higgins, M.B., F.R.C.S., of a daughter.

Morton.—On Nov. 6th, at Wellington-road, Bridlington, the wife of Dr. H. J. S. Morton, of a son.

Orme.—On Oct. 27th, the wife of Dr. Stuart Orme, of Chiltern Croft, Wendover, of a daughter.

Todd.—On Oct. 30th, at Lexham-gardens, W., the wife of H. C. Todd, F.R.C.S. Edin., of a daughter.

MARRIAGES.

Allan—Davies.—On Nov. 7th, at Liverpool, James Shewen Allan, L.R.C.S. Edin., to Muriel Davies, only child of Mr. and Mrs. Sydney J. Davies, of Bardwells, Roydon, Essex.

Bond—Skou.—On Nov. 6th, at St. Thomas's, Orchard-street, Major A. H. Bond, R.A.M.C., to Rasmine Skou.

Myles—Chidley.—On Oct. 27th, at St. Mark's Church, Surbiton, Captain Robert Boulton Myles, O.B.E., M.B., Ch.B., R.A.M.C., to Emilie Stanier, only child of Horace Chidley, Captain, British India Line (Indian Service), and of the late Mrs. Chidley.

Quinton—Murray.—On Oct. 31st, at Paddington, Percival G. Quinton, M.D., to Jessie, youngest daughter of the late J. D. Murray, Esq., of New Luce, Wigtownshire.

DEATHS.

Cripps.—On Nov. 8th, at Bentinck-street, London, William Harrison Cripps, F.R.C.S., of Glendaruel, Argyllshire, N.B., and Bentinck-street, London, aged 73.

Green.—On Nov. 5th, at "The Moorings," St. Albans, Thomas Henry Green, M.D., F.R.C.P., late of Wimpole-street, aged 81.

Woodrooffe.—On Nov. 9th, George Borries Woodrooffe, M.B., B.C. Camb., of Intake, Sheffield, aged 54.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE LIMITATIONS OF PHYSIOLOGICAL STANDARDISATION.*

By H. A. D. Jowett, D.Sc., Ph.C.

Ten years ago I had occasion to state that, despite the increase in our knowledge of the active principles of drugs, in many cases the use of galenical preparations continued concurrently with that of their active principles. For example, though an enormous amount of work had been done on the alkaloids of opium, the tincture, though standardised to a definite content of morphine, still held its own among prescribers, and the same might be said of tincture nux vomica and strychnine. On the other hand, it was true that in certain cases—e.g., pilocarpine and cocaine—the use of these active principles had almost superseded that of their corresponding galenical preparations. The opinion was expressed that whilst the ultimate goal—both logical and practical—must be the use of active principles, it was our deficiency of knowledge that prevented the attainment of this ideal. Whilst the patient work of pharmacists and chemists had rendered possible the control of galenical preparations of many drugs by chemical means, there still remained some which could not thus be standardised. Physiological methods of control, therefore—more or less quantitative—had been evolved and used for several potent remedies, when prompt action was required, principally ergot, the digitalis group, cannabis indica, and extract of pituitary body. Recently this control has been extended to synthetic products of the arsenobenzol series and to active principles in an impure condition such as insulin. A prolonged experience (of nearly 20 years) in the manufacture of the majority of these preparations requiring physiological control has so impressed me with the limitations of this method and with the difficulties involved in the attainment of a degree of accuracy to which the chemist is accustomed, that I wish to point out some of the difficulties met with by manufacturers in preparing substances to meet a physiological standard.

The Importance of Accurate Standardisation.

I would again emphasise the point that the use of galenical preparations, either chemically standardised or physiologically controlled, is only an intermediate step to the ultimate goal which must be the use of active principles whose purity can be determined by chemical methods. In my opinion, the aim which we have constantly to keep in view is this: to provide the medical man with the knowledge that he can prescribe such active principle or principles together with other substances either to modify their action, increase or retard absorption, &c., with the certainty that he obtains exactly what he prescribes. He will always have to deal with one variant—namely, his patient—and the determination of the variation will depend on his diagnostic skill. It is therefore important that the remedy he decides to employ will not vary, and this can only be accomplished by the use of pure substances. In this connexion I may quote the opinion of a most eminent authority on this subject, Dr. Dale, now in charge of the biological testing of the Medical Research Council. In 1913 in a discussion on the relation of the galenical preparations of ergot to the active constituents—ergamine, ergotoxine, and hydroxyphenylethylamine, he said: "As a medical man, he had no hesitation in saying the difficulty was really not so much on the pharmaceutical as on the medical side. . . . What they needed above all, to put the ergot question on a really satisfactory basis, was more clinical experience. If medical men wanted ergotoxine then ergotoxine could be obtained. On the other hand, if the amines of ergot were what medical men needed then, personally, he thought ergot had no place in the Pharmacopœia at all." These remarks still apply, and not only to ergot but to other drugs.

Before proceeding to my subject proper, may I briefly allude to the progress of standardisation. The difficulty has only existed, within recent years, with drugs of vegetable or animal origin, for the inorganic drugs such as sulphur, Epsom salts, calomel, &c., have always been capable of chemical control. The first method of using drugs was to employ the whole material, and even to-day many are exhibited largely in this form, such as opium, rhubarb, senna, and the various animal extracts such as thyroid gland, &c. The next step was to separate the active constituents from known inert material and thus came into use tinctures, infusions, extracts, &c. With the advent of these preparations arose the first attempts at control, such as determination of the extractive. Even to-day we have no knowledge of how to assay the value of the group of purgative drugs such as cascara, rhubarb, &c., and it is probably not necessary to attempt to value the activity—if such exists—of drugs such as dandelion. With the increase in our knowledge of the properties of alkaloids, methods of determining the total alkaloid content became available and one cannot overlook, in this connexion, the patient and classic work of the pharmacists, Farr and Wright. Further refinement took place in the determination of the active principles by isolating the alkaloid, such as morphine in opium, quinine in cinchona, or pilocarpine in jaborandi preparations, and, on the other hand, in the titration of the residue known as total alkaloid. There still remained a group of potent drugs for which no known chemical assay was available, and thus the methods of physiological control were welcomed. For 30 years they have been in use and have been improved by the work of numerous investigators and have now been officially recognised by the U.S.P. of 1916. Furthermore, the issue of certain remedies—viz., the arsenobenzol series and insulin—is only permitted after they have passed the biological tests of the Medical Research Council.

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* Abstract of a lecture delivered at a meeting of the Pharmaceutical Society on Nov. 13th.

The Limitations of Physiological Control.

First let it be clearly understood what is meant by this term. It surely means the limit of experimental error of the method. Suppose samples of the same drug, chemically standardised or allowed a certain percentage of impurity, are submitted to analytical chemists in any part of the world, it will be found that their results will agree within a very small limit of error. For example, if a sample of opium properly taken and bulked is submitted to a number of analysts for determination of the morphine content, their results will be found to agree within ± 2 per cent. But no competent pharmacologist claims to test any biological preparations with this degree of accuracy; the error in most biological tests is about 20 per cent., in some tests greater, and in some cases it is difficult for the pharmacologist to say more than "high content," "medium," "poor," or "none."

The chief difficulties of physiological standardisation are (1) choice of method, (2) the standard, (3) variation in the animals used. The first two difficulties are well exemplified in the work of Burn and Dale on pituitary extracts. In dealing with the choice of method, they point out that if all the physiological actions or all those of therapeutic importance are due to a single active principle, any method capable of determining the relative concentration of that principle would be admissible, and that provided the action could be measured with accuracy it need have no relation to the therapeutic effect desired. But it should be pointed out that it is chiefly with these preparations where our ignorance as to the nature of the active principle or principles exists that physiological standardisation is necessary. If we had this knowledge we could adopt chemical standardisation and dispense with the physiological assay. Therefore, this difficulty of choice of method is inherent to physiological assay and is one of the causes of its limitations.

Having agreed, however, upon a method the next difficulty is having some standard against which to test the drug. For it must be noted that in most cases physiological standardisation has to be carried out by observing the effect produced by the unknown factor or drug against that obtained from a substance of known purity. In the case of pituitary extract the difficulty was to find a pure substance with which to compare the effect of the sample under examination. Burn and Dale tried histamine and potassium chloride but rejected both, and ultimately had to rely on an extract of pituitary gland prepared in a special manner. In this instance the standard adopted can be reproduced an indefinite number of times by competent workers and these successive "standards" when tested against—e.g., two ordinary good commercial pituitary extracts—would yield the same figure for relative potency on several occasions to within 20 per cent. of the true value of the sample or standard. Recent investigations indicate that it may be possible in the near-future for all laboratories to obtain and use samples of dried stable material taken from the same batch of standard.

There is finally the variation in the animals chosen, not only individually but generally, produced by differences in climate, season, location, and feeding. The only way in which to solve this difficulty is to take the average of a series of results obtained from a number of animals. This leads, however, to practical objections. How many animals are to be used? The greater the number the less the experimental error, but who is to fix the limit? With the larger animals such as rabbits, the expense involved adds to the difficulty. In drawing attention to these difficulties of physiological testing, it should be pointed out that in discussing this question with several physiologists it is found that all are fully aware of the limitations of their tests. They would welcome the replacement by chemical methods and this is also the case with regard to serums. Only a year or two ago it was impossible to differentiate between a horse serum containing a large amount of antitoxin from one with no antitoxic content, unless one were allowed to use animals. Recently, however, a flocculation test has been discovered and now, under certain conditions, it is found possible not only to identify the antitoxin serum by in vitro test, but to determine its value to within narrow limits. Should further experience confirm the value and accuracy of this flocculation method, it will be welcomed with a sigh of relief by all those whose business it is to make or test antitoxin.

A Plea for Further Research.

There is no doubt that, despite these limitations and the accident of experimental error, the biological control of potent remedies, such as ergot, the digitalis group, the arsenobenzol group, pituitary extract, and insulin, is most desirable. It has been pointed out that a more accurate method of testing is to be sought, as the losses caused by an error of testing in the case of such costly material as insulin may be considerable. There is no need to feel alarm about the efficiency of physiological standardisation, but what one does want to guard against is assuming a greater degree of accuracy for this method of control than is actually the case. The limitations of the method emphasise the importance of replacing it as soon as possible either by chemical methods, if satisfactory ones can be produced, or, better still, by the employment of the pure active principles.

May I, in conclusion, make a special plea that I shall not be misunderstood. As chemists we are accustomed to prepare and submit substances of a required degree of purity with the utmost confidence—knowing that we can substantiate all claims if necessary by experimental demonstration—but this is not the case when substances have to be submitted to physiological control. Its present necessity must be fully admitted, and full justice should be done to the patient and skilful work of the physiologists who carry out this work. The value of our ability to control these potent medicaments—even if such control is liable to a greater error than the chemist is accustomed to—certainly receives full appreciation from both prescribers and chemists. It is, however, most desirable that physiologists should aim at reducing their errors as much as possible, and that manufacturers should coöperate in making their preparations as reliable as knowledge permits. There is no doubt that this is being done, but it should not be the final aim. What I do plead for especially is further research into the composition of these drugs, with a view to the isolation of the active principles and for knowledge as to the effect of accompanying substances on their action. Above all, I wish to emphasise the importance of coöperation between investigators, manufacturers, and the medical men, so that these remedies can be exhibited in a condition most certain to bring about the effect desired on the patient.

PROBLEMS OF HEALTH SERVICE IN RURAL DISTRICTS.

In a lecture at the Royal Institute of Public Health on Nov. 7th Dr. W. A. Bullough set out the general lines of the scheme which has been adopted in the county of Essex with a view to preventing overlapping in the public health service. Dr. Bullough considered that a new mapping out of the sanitary areas and a replanning of the administrative units would be the best measure for dealing with an admittedly difficult problem, but since such changes were unlikely to be introduced in the next few years, it was necessary to meet the actual situation, and he believed that much could be achieved by coöperation between the existing bodies and by a combined medical service such as had been introduced, as an experiment, in Essex during the last four years. The aim had been to establish a combined service among the rural population and in urban districts of not more than about 20,000 inhabitants. In the county of Essex there were 47 sanitary authorities—5 boroughs, 25 urban districts, and 17 rural districts. Of these, 23 were served by part-time medical officers of health, 8 of whom were receiving a salary of £50 or less. While many part-time officers were doing excellent work, yet it was obvious that as a whole good work could not be expected where such salaries were paid, apart from the fact that their public duties might conflict with their private interests. Two or three medical officers of health had been appointed in Essex before the present scheme, under a section of the 1875 Act, but the great drawback was the size of the areas they were expected to serve, these being anything from 150,000 to 200,000 acres. The problems of time and distance had really driven Dr. Bullough to the idea of combination. Difficulties were sometimes experienced in getting different local health authorities to act together, but Dr. Bullough believed that where such unnecessary rivalry was found it was usually due to some lack of tact on the part of the officials.

In 1919 he had found one large combined area of 150,000 cres in the charge of a medical officer aged 85, who, though e had been a pioneer of public health work in earlier days, ras no longer active; there were, in addition, a county ouncil tuberculosis officer and a school medical officer, ut the three had never even met each other. In another istrict a tuberculosis nurse and a school nurse, who had been orking there for eight years, did not know each other. he large area referred to was split up into three, the com-ined medical officers of health being appointed for a trial eriod of one year. At the end of that time none had any ifficulty to record, and the scheme had gone on automatically ver since. The objection that claims of a dual authority f the county council and the local health authority would ash had not materialised. When there was an appoint-ent to be made the two bodies met, and the county council ould make a selection of several candidates, any one of hom might be appointed by the local health authority, us obviating any trouble on the score of the personal ctor.

What had really happened in Essex was that the county ad been split up into a series of smaller units than previously, ut instead of being worked by two, three, or four medical ficers, not always in harmony, the duties in the smaller eas were all carried out by one person. Dr. Bullough umerated as advantages: (1) Avoidance of overlapping and necessary travelling; (2) efficiency, economy, and an all-und sound investment; (3) the prestige of the medical ficer was raised, and the variety of duties added interest his work; (4) public health tuberculosis regulations and eatment of tuberculosis could be more efficiently carried t; (5) school duties could be usefully combined with work connexion with infectious diseases; (6) continuity of pervision and public health policy was maintained through-t the area; (7) confusion in the minds of parents, teachers, operty owners, and the like was avoided; (8) relations tween the various authorities were more harmonious;) the same policy applied to dental and nursing services.

CYNOGLOSSUM.

THE hound's-tongue, *Cynoglossum officinale*, is a common raginous plant in this country containing two alkaloids hich were shown by Dr. J. Gordon Sharp at the Thera-utical Society[1] in 1906 to bear some relationship to rare. Dr. Sharp found that cynoglossum renders the in moist and hyperæsthetic, stimulation of the sciatic rve or muscle only affecting the unpoisoned side, death curring with the heart in diastole. Probably on this count the drug once possessed some reputation against drophobia, and a pill containing hound's-tongue among her ingredients survived in official formularies until the ghteenth century. We have received through Messrs. ys, Muller and Co. (19A, Coleman-street, London, E.C.) paper by Dr. E. Poulopoulos, of Athens, describing inical experiments, first made 25 years ago in the surgical partment of the Hospital Evangelismos under Prof. alvani, in the use of cynoglossum powder as an application malignant ulcers of the skin. Dr. Poulopoulos's subse-ent experience leads him to believe that this action is t merely in the nature of a coincidence. The powder is read daily on the wound with sterilised vaseline and after o or three weeks the ulcer tends to cicatrise at the edge, e healing process extending gradually towards the centre. e begins by cauterising the hard edges of the ulcer and plying chromic acid to the base. Cases are quoted in ich the cure has persisted a number of years, but the thor does not set out the microscopical evidence on ich the ulcers were held to be of malignant nature.

TRANSMISSION OF "COLOUR-HEARING."

THE gift of "colour-hearing" is one which has sometimes barrassed its possessor who has kept this particular light der a bushel for fear his friends should mark him down a prospective inmate of an asylum. It seems, however, w to be generally agreed that the association of certain unds with certain colours is not a morbid state, though it undoubtedly rare. Psychologists have given the terms synæsthesias" or "secondary sensations" to these curious rrelations of the sense of colour with the senses of smell, ste, and sound. Goethe knew of this condition which, in 81, was the subject of important researches in Germany. was found by Bleuler and Lehmann that 12 per cent. of e 596 persons examined were in possession of synæsthesias. ese vary considerably in degree; a "colour-hearer" may perience a certain definite colour sensation when he merely inks of certain sounds and words without actually hearing em. This condition may become less noticeable with age, t throughout life certain sounds are associated with the me colours, a sound never giving rise to a sensation of een at one age and of red at another in the same person. ssessors of this gift are sometimes able to detect a discord only when they refer the matter to their colour sense. In a recent paper by Dr. H. Lundborg[1] an account has been given of a Swedish family in three generations of which this and other psychic phenomena were studied with a view to ascertaining whether or not they are inherited according to Mendel's laws. He has come to the conclusion that they follow these laws as faithfully as more material properties. In the first generation the father was a "colour-hearer." In the second generation there were three male and three female "colour-hearers," and in the third generation there was one male to two female "colour-hearers." In the same family such psychic qualities as a vivid imagination, a marked sense, or "bump" of locality, and a craving to travel or write were investigated, and it is interesting to note from the genealogical tables published by Dr. Lundborg that these qualities are handed down from one generation to another in a remarkably uniform manner.

COLONIAL HEALTH REPORTS.

Trinidad and Tobago.

Mr. T. A. V. Best, C.M.G., C.B.E., Colonial Secretary, in his report for the year 1922, states that the estimated population of the two islands is 374,650. The white population is chiefly composed of English, French, Spanish, and Portuguese, but the large majority of the inhabitants are natives of the West Indies of African descent, the balance being made up of East Indians, estimated at 121,249, and a small number of Chinese. The birth-rate was 31·82 and the death-rate 22·35 per 1000; the infantile mortality rate was 138·6 per 1000 births. The death-rates from the principal diseases were, per 1000: diarrhœa and enteritis, 1·78; malaria, 2·25; tuberculosis, 1·13; dysentery, 0·59; enteric fever, 0·54; and ankylostomiasis, 0·77. Influenza was prevalent generally, and was of mild type. There was no epidemic prevalence of any other disease. Venereal clinics on modern lines continue to be well attended at the out-patients' departments of the Colonial Hospitals in Port-of-Spain and San Fernando. On the recommendation of the Central Board of Health drainage schemes for the control of malaria are being carried out in the country districts. The intensive treatment of hookworm disease was continued by the Rockefeller International Board of Health, and the Central Board of Health coöperated by enforcing the establishment of latrines in advance of the treatment in the areas about to be operated in. The hospital accommodation provided comprises 340 beds at the Colonial Hospital, Port-of-Spain, 120 beds at the San Fernando Hospital, and 248 beds in the Government District Hospitals at Tobago, Arima, St. Joseph, Tacarigua, Couva, Prince's Town, and Cedro. There are small temporary hospitals at Sangre Grande, Mayara, and Toco. The climate of Trinidad—the most southerly of the West Indian islands—is tropical and may be divided into two seasons, a dry one from January to the middle of May, with an average rainfall of 2 to 3 in. a month, and a wet one from June to December, with an average of 8 in. per month. The coolest months are December to April. The average temperature during the day is 84° F. and during the night 74°. The conditions are healthy and by no means hurtful to Europeans, provided reasonable precautions are taken. Hurricanes are unknown.

Bermuda.

The official report for 1922 states that the population was estimated at 20,410—7001 white and 13,409 coloured. The birth-rate was 26·8 per 1000 among the white and 34·2 among the coloured population; the death-rate for the whites was 18·02 and for the coloured 19·2 per 1000. The infant mortality was 16·3 per cent. of living births, nearly one-half of the deaths occurring during the first month after birth. The number of stillbirths was equal to 4·4 per 100 living births. Illegitimate births numbered 12·6 per cent. of the total (3·4 for white and 16·8 for coloured population). The marriage rate was practically the same (8·40 per 1000) among both white and coloured. The average age at marriage was for bachelors 28, and for spinsters 22·5 years. The general health of the community in 1922 was good. Measles and influenza were prevalent during the winter, and whooping-cough was present throughout the year. There were 38 cases of typhoid fever, resulting in six deaths, which were in almost every instance directly traceable to defective sanitary arrangements. Typhoid infection through an infected water-supply is very rare, owing to the fact that every house is required by law to have an adequate rain-water cistern from which all supplies of drinking water are drawn. A leper asylum for the accommodation of eight lepers, hitherto not specially provided for, is being provided at Little Head, St. David's Island. In September certain members of the crew of the R.M.S.P. *Chignecto* were found to be suffering from a mild type of small-pox, and 41 passengers were placed under quarantine. Three of the contacts subsequently developed the disease, but no further cases materialised. Owing to the prevalence of this disease in epidemic form in certain of the islands of the West Indies it has been found necessary to take special precautions in the case of all passengers landing from the West Indies. The rate of infant mortality continued high, being at the rate of 165 to 1000 births; the chief causes were the inexperience and neglect of mothers and improper food. A lying-in hospital for the mothers of the poorer classes and some sort of parental clinic for the education of mothers are badly needed. The general sanitary condition of the island is deplorable when considered in relation to the high wages earned by the poorer classes and the generally high standard of living which prevails. No less than 170 residences were found unprovided with sanitary conveniences of any kind, while out of 4634 inspections made by the Health Department defects were reported in 50 per cent. of the dwellings. There is no adequate system of scavenging in operation, with the result that the fly nuisance is a serious one. In the summer months mosquitoes breed in great numbers among the unburied tins which accumulate in the more thickly populated areas, and also infest the large undrained marshes, particularly in the vicinity of Hamilton. It is proposed to obtain the services of Dr. Andrew Balfour, of the Wellcome Bureau, to advise on the whole situation. About 24,500 tourists are estimated to have visited the colony during the year, an increase of about 7500 over the figures for 1921. The St. George's Hotel had an exceptionally successful season. The floating of the Hotel Bermudian Company marks a further step on the part of private enterprise towards the development of Bermuda as a resort calculated to attract a type of visitor who wants a high standard of comfort and luxury, and is prepared to pay for it; at the same time the needs of the tourist have also been catered for by the opening of the Royal Prince Hotel. There is no regular direct passenger service to the United Kingdom, but during the summer of 1922 the Elder-Fyffes Company ran seven direct passenger boats each way, in which the accommodation was largely sought after.

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[1] THE LANCET, 1906, i., 974.

[1] Acta Med. Scand., 1923, lix., 221.

Fiji.

In his report for 1922 the Hon. T. E. Fell, C.M.G., Colonial Secretary, remarks that although the year was one of trade depression the general health of the native did not appear to have suffered. The birth-rate for the period was 33·58 and the death-rate 23·23 per 1000. No serious epidemic of infectious diseases occurred. A few cases of typhoid were reported, and the number of dysentery cases was very small; this latter disease, once a serious menace to Fiji, is now almost negligible. Considerable progress has also been made in combating tertiary yaws and kindred diseases. Over 4500 injections of salvarsan were administered, and the incidence of the disease is now much less frequent than in former years, especially amongst children. A serious effort was made to deal with ankylostomiasis under the auspices of the Rockefeller Foundation, over 40,000 cases of all nationalities being treated. This disease is very prevalent and continuous effort will be necessary to eradicate it, as re-infection occurs rapidly. The Fijians and East Indians were found to be affected in almost equal proportions, but the species of worm generally found in Fijians (*Necator Americanus*) is different from that in Indians (*Ankylostoma duodenale*). It is interesting to note that although Indian immigration began over 40 years ago, the amount of mixed infection should be so small. The infection is comparatively slight in parts where the rainfall is low, but very heavy where it is high. Correspondingly, the physique and general well-being of the Indian population are much higher on the dry than on the wet side of the main islands. Intravenous injection of chaulmoogra oil continues to give good results in leprosy, and several more cases have qualified for discharges from the asylum. Education, through native medical practitioners and other means, is removing from the native mind the belief in the desirability of infection of children with yaws. The salvarsan group of drugs is much sought after, and, if funds should allow, it is now practicable to consider the eradication of a disease almost as deadly in its after-effects as syphilis is elsewhere. "Fiji," writes Mr. Fell, "is exceptionally healthy for a tropical country. It is protected against most of the infectious fevers by its distance from a continent. The absence of the anopheles mosquito prevents the occurrence of malaria. Plague, yellow fever, small-pox, or cholera have never gained admittance. Neither scarlet fever nor diphtheria appears able to flourish. First attacks of appendicitis hardly ever occur in Fiji. Dysentery is a steadily decreasing cause of ill-health. The climate is, however, generally unsatisfactory for those suffering from tuberculosis or asthma. The moist heat has an enervating effect on the nervous system. . . . There is evidence of the desire among some of the younger generation of Fijians for a more individualised mode of living. This generally finds expression in the men leaving their towns and working as labourers in the plantations. Impetus has been given to this movement by the substitutio of a considerable number of Fijians for Indian labourers i the sugar industry. Many of the men utilise the wag thus earned for communal purposes, such as in buildin iron-roofed houses in their towns and so obtaining reli from the constant work necessitated by repairs necessary t thatched native-built houses. A small number obtai exemption from communal duties and support themselv on their own plantations, whilst others earn their living a sailors, carpenters, boat-builders, and mill hands. Owin to their traditions of communal living very few Fijians ev attempt to engage in retail trade, and they remain conte to leave their trade in the hands of Europeans, Indians, an Chinese. Although many of them are employed in operati marine engines, the driving of motor-cars is left entirely the hands of Indians. On the other hand, the Fijians a taking very readily to the use of horses, and are evincing keen interest in horse-racing. In some districts footba and cricket are pursued with considerable keenness. Despi the increased tendency to become wage-earners, agricultu remains the main occupation of the Fijians. The cultivati of bananas, which was formerly largely in European hand is now almost entirely under their control. In the sug districts the natives are, in increasing numbers, employi more modern methods of cultivation, and are becomi accustomed to the use of European farm implements in th production of sugar-cane. A considerable number of the breed their own horses and bullocks, which they use f ploughing and general agricultural work."

A CRITICISED ADVERTISEMENT.

WE received, and duly published last week, an advertis ment stating the terms offered by the Nottinghamshi County Council to applicants for the post of County Medic Officer. We learn that those terms do not conform to t scale of salaries approved by the Representative Body the British Medical Association and the Society of Medi Officers of Health, but no warning reached us at the tin from either body, and none has been received since. But anonymous letter demands an explanation from us. Here it One communication was received Nov. 13th, dated Nov. 10 from Nottingham, with a reference to a local advertisem which had appeared previously. This letter asked us withhold publication from an issue of THE LANCET wh had been published three days before. The advertisem has been stopped, but we did not receive any assistan from the places whence it should have come.

TETANUS FOLLOWING OPERATION FOR APPENDICITIS.

AT an inquest before the deputy coroner of Preston Nov. 8th a verdict of "Death from misadventure" w returned on a woman, aged 38, who was operated on appendicitis in Mount-street Hospital, and died fro tetanus after appearing to progress favourably. Antitetan serum had been injected. The medical attendant suggest that the tetanus was set up by the catgut used in t operation. The coroner pointed out that every preca tion was taken to sterilise catgut, and that used in t hospital was obtained from the best firms, but in th case the bacillus or its spores might have resisted t sterilisation.

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Bradshaw Lecture

ON

ROGNOSIS IN ANGINA PECTORIS.

Delivered before the Royal College of Physicians of London on Nov. 1st, 1923,

By JOHN HAY, D.L., M.D. MANCH.,
F.R.C.P. LOND.,
HONORARY PHYSICIAN, ROYAL INFIRMARY, LIVERPOOL.

PROGNOSIS is one of the more fascinating aspects of edicine. It is a balancing of the probabilities, and emands a wide experience, an intimate knowledge ıd a keen sense of proportion, combined with an stinctive capacity for weighing imponderables. amilial tendencies, the past history of the patient, e objective signs of actual disease, and those subtle ıt significant subjective discomforts pointing to preciation of function, must all be passed in review, ıd their relative importance weighed before venturing a verdict.

There are few conditions in which a clear statement to the future is more anxiously demanded than where in of an anginal nature has manifested itself, for e victim is conscious that in him "the unseen at of life and the target of death" is mortally tacked—there is with each paroxysm an ominous embling of the very foundations of a man's ing which leaves behind it a shaken and appre- nsive soul. The problem of assessing the expecta- on of life under these conditions is most difficult, ıd even after careful consideration of all the facts ıd an attempt to view the symptoms in their rrect perspective, an accurate opinion is not easily tained. The prognosis given may be entirely stifiable and yet prove far from the truth, for there e always factors beyond assessment. Where so uch is uncertain we must seek for any solid ground which to base our opinion.

I have recently reviewed the records of 309 patients whom the dominant feature was pain of an anginal pe, in an attempt to formulate the results of my rsonal experience; and I have dealt with them ore particularly in relation to prognosis. It is this pect of the problem which I thought might usefully rve as a subject for our consideration. It is not my tention to enter the debatable ground either of the sential nature of angina or of the special pathological anges which are said by some to be causally evitable. We are now dealing, not so much with e interpretation of the pain in angina, as with the ortality. It is sufficient to point out that two of e greatest living authorities, both distinguished ysicians, and men who have devoted many years their lives to this very subject, have arrived at ametrically opposite conclusions.

I refer, of course, to Sir Clifford Allbutt and to James Mackenzie. The latter holds that in angina e symptoms are produced by exhaustion of the heart ıscle and he stresses the importance of coronary d myocardial disease. He concludes that angina a symptom-complex rather than a disease. Sir fford Allbutt states with no uncertain voice that gina *is* in truth a disease, and that the symptoms due, in say 90 per cent. of the cases, "to disease the thoracic aorta and especially of its outer vestment," and further, "that the coronary eries and the myocardium have nothing to do th the pain of angina." In fact, with good-natured sapproval, he terms this view "a stiffnecked sumption."

CAUSATIVE FACTORS OF ANGINAL PAIN.

Whichever of these two views we are disposed to cept as the more correct, it will be generally con- led that anginal pain is the resultant of two factors: Afferent stimuli passing from the heart and aorta; d (2) the sensitiveness of the receiving apparatus; in other words, of those levels of the central nervous system associated with the heart and aorta. It is to Sir James Mackenzie that we are more particularly indebted for the full appreciation of the importance of this latter factor.

From the interaction of these two we have pain, and the accuracy of prognosis will depend on a careful consideration of both, and a decision as to which of the two is dominant. The more exalted the sensitiveness of the segments involved the more susceptible to stimulation, then the less ominous the outlook and the greater the ground for hope of a satisfactory response to treatment. On the other hand, the second essential matter for investigation is the reserve power of the heart, the health of the aorta, arteries, and myocardium, and also the permanent load on the heart or the work that it is called upon to perform, independently of any physical effort.

My series includes both private and hospital patients, and, in accordance with the usual experience, the large majority were private. There were 309 patients in the series up to the end of July, 1923.

TABLE I.

309 Cases of Angina.—Males, 243; females, 66 (proportion 3·7 : 1).

V.D.H.—35 cases: males, 30; females, 5. Aortic valves diseased in 34, mitral stenosis uncomplicated in 1.

Systolic Blood Pressure.—(35 V.D.H. patients not included.)

—	mm. Hg.			
	Under 150.	150 179.	180 199.	200 and over.
Males, 206	73	62	28	43
Females, 59	10	12	10	27

Systolic Blood Pressure 180 mm. Hg and over:—

Males ..	71 in 206 =	34·5 per cent.
Females ..	37 in 59 =	62·7 ,,
Total ..	108 in 265 =	40·7 ,,

Table I. gives information concerning the type of patient, the height of the systolic blood pressure, and the incidence of valvular disease. There were 35, or 11·3 per cent., in whom I had made a diagnosis of valvular disease of the heart. On analysis of these it was found that, with one exception, the aortic valves were damaged. There was definite aortic regurgitation in 26, and some degree of aortic obstruction in ten patients. In the whole group of 35, only one patient suffered from frank uncomplicated mitral stenosis.

Two among many points of interest particularly attract our attention: (1) The relation of the electrocardiographic (E.C.G.) findings to prognosis; (2) the diagnosis and prognosis of minor angina.

Before considering them, a general but cursory survey of the problem may be permitted, and it would be well to state at once what the term "angina" signifies.

SIGNIFICATION OF THE TERM "ANGINA."

By angina pectoris I have in mind an arresting form of cardiac pain, substernal rather than submammary, in which the patient is conscious of a sense of oppression, or constriction, which may reach a high grade of intensity, even a condition of intolerable anguish. This pain has certain well-recognised lines of radiation and is often induced by effort or emotion. There are, in addition, characteristic associated symptoms not invariably present, notably the sense of impending death, and indescribable anguish of mind accompanied by varying vaso-motor disorders such as cold sweats and deathly pallor.

It is well to remember that the information desired by the patient and his friends refers more often to the duration of life than to the mode of death, although the latter is not infrequently the subject of their inquiries.

Causes of Death in Anginous Patients.

The first important factor when considering the mortality is to recognise clearly that an anginous patient does not necessarily die in an anginal seizure, but frequently from other and less dramatic causes. A number pass away quietly in their sleep without apparent distress, or death may be sudden and painless apart from sleep. In these cases the final event is probably that of fibrillation of the ventricle, and is without any direct relationship to an anginal attack. A large group is that formed by those who die the slow death of progressive cardiac failure. Then there are those who succumb to cerebral hæmorrhage, while a few die from uræmia with its protean manifestations; and, as one would expect in a malady which may persist for years, many die from causes remote from the angina and its associated pathological conditions.

I have been able to obtain information concerning the mode of death in 65 patients.

Of these, 32·3 per cent. died in or immediately after an anginal attack; and 24·6 per cent. died either in their sleep or suddenly—a total of 37 in 65. Twelve died from cardiac failure, and 16 from a variety of causes, some quite independent of the anginal condition. These are given in Table II.

Table II.

Anginal attack	21	Died in sleep	4
Sudden death	12	Cardiac failure	12
Other causes	16		

(Diseases of kidneys, 3; diabetes, 1; cerebral hæmorrhage, 2; pneumonia, 1; gangrene of legs, 1; gangrene of lungs, 1; influenza and bronchitis, 1; suicide, 1; sarcoma, 2; senility, 1; pernicious anæmia, 2.)

If we accept the view that sudden death in these patients is usually due to fibrillation of the ventricle, and the evidence, clinical and experimental, favours this supposition, it is of interest to consider the factors predisposing to this lethal tumult of the myocardium. This has a definite bearing on prognosis.

Prof. J. A. MacWilliam pointed out in August last[1] that the exciting cause of fibrillation is "an increased demand on the powers of the heart and more or less stress on the organ"—for example, muscular effort or emotional excitement. Fortunately such factors leave the normal heart unaffected and are capable of inducing fibrillation only when the heart is in an abnormal condition of excessive susceptibility. Certain drugs, such as digitalis, increase the liability to fibrillation and there are probably other drugs and abnormal conditions with a similar tendency, but a "prominent part in the setting up of abnormal susceptibility to fibrillation must be assigned to defective coronary blood-supply." The condition of the coronary arteries is, therefore, one important factor to be considered when estimating the liability to sudden death.

The liability to death *during* an anginal seizure in any particular case is almost incalculable, and I frankly admit that I know of no certain rule by which one can decide the probability of a sudden, dramatic, and painful exitus. An increase in the frequency and severity of the attacks is obviously ominous, but even when this increases manifest uncertainty is still present. An anginal seizure may come like a bolt from the blue. The first attack may be the last, with possibly no premonitory sign or signs to indicate that death is on the threshold.

It is well recognised that the severity and gravity of the initial seizure give no indication of the liability to an early recurrence, though in the presence of the attack itself, confronted by the physical and mental distress, it is difficult and almost impossible to take this dispassionate view. Again, it is equally if not more important to appreciate the significance of some of the minor but ominous substernal sensations, often so lightly dismissed. If, however, the patient survives the first stormy onset, years may pass before there is any recurrence of a comparable severity.

Expectation of Life in Anginous Patients.

While recognising the elusive and incalculable element of uncertainty, and frankly admitting the possibility of a sudden and terminal anginal seizure, I believe that the expectation of life in these patients can be predicted with some degree of justifiable confidence. The outlook depends on the integrity of the myocardium, and the health of the general arterial tree. It will depend also on the degree of coöperation given by the patient, who must be honest with himself and prepared to live down to the level of his damaged organs. Death is often the outcome of the associated conditions, and the cry of the heart is nothing more than the signal that it also is involved in the general depreciation. Whatever indicates a tendency to cardiac failure is of significance, and search must be made for every evidence of myocardial disease or functional impairment. It is significant that the first symptom of angina can often be related to some sharp illness, involving a pyrexia of possibly only a few days' duration. Such a history, if recent, indicates caution in offering an opinion as to the prognosis, until sufficient time has been allowed for the myocardium to recover.

Dyspnœa.

One indication of an impaired myocardium is, of course, dyspnœa. This symptom, though frequently present in patients who suffer from angina, is not a characteristic feature of an anginal seizure. It is not an element in the diagnosis, but it is a valuable aid in prognosis, as an indication of myocardial inadequacy. When dyspnœa is induced easily in an anginal patient who presents a normal blood pressure, with no demonstrable enlargement of the heart and no valvular disease, one is justified in suspecting a defective blood-supply to the myocardium, unless there is some definite history suggesting a temporary toxæmia of the heart muscle. In these cases the prognosis would be grave, and still more grave if the liability to the dyspnœa and pain, or both, is more and more easily induced in spite of a carefully regulated life.

Pulsus Alternans.

As another sign of value I would mention the pulsus alternans, the ominous significance of which is not sufficiently appreciated. I think this is partly due to the fact that this variety of pulse is not readily recognised and is apt to be confounded with other and innocuous forms of arrhythmia. It is characterised by an alternate lessening of the amplitude of the arterial pulse, the pulse remaining regular in time, and it is most easily perceived when recording the blood pressure. As the pressure in the embracing armlet rises the smaller and alternate pulse is obliterated, and the pulse-rate at the wrist is suddenly halved. A polygraph record enables the transient appearance of this irregularity to be noted, when it occurs for a few seconds after the appearance of an extra-systole, or after exercise. When appearing in patients who suffer from anginal attacks, it is a sign of undoubted significance, and it in itself would justify a very grave prognosis.

However, pulsus alternans is rarely the only untoward manifestation, being usually accompanied by other indications of cardiac distress—such as an increasing breathlessness, attacks of nocturnal dyspnœa, or even of periodic breathing. As with dyspnœa, it is not a symptom or indication of angina, but it does give a clear lead as to prognosis in any anginal patient. In them it is a manifestation of distress, and probably has for a pathological basis fibrosis of the myocardium. Dr. Davenport Windle[2] goes so far as to say that "in any patient with arterial disease and alternating pulse, anginal attacks have occurred or will occur sooner or later, unless dropsy sets in, when, if present, they will cease." In his series of 17 cases no patient lived longer than 17 months after the presence of pulsus alternans.

My experience is that it is not a common sign, but this is perhaps due to the fact that I have not had the pportunity of watching the patients day by day, d of observing them after exercise, and on those casions when premature beats were in evidence, for der such conditions a latent alternation becomes ankly evident. I have, however, noted alternation 12 anginal patients. Of these, ten are dead, and e average duration of life in this 10 was 9 months, o living 25 months after the alternation was served. An anginal patient who presents well-arked alternation is not likely to live beyond 12 to 18 onths.

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[1] Brit. Med. Jour., 1923, ii., 218.

[2] The Lancet, 1911, i., 1260.

Raised Blood Pressure.

On analysing the records it is clear that one of e commonest abnormal conditions associated with gina pectoris is a raised blood pressure. In 300 tients, after exclusion of the 35 suffering from lvular disease of the heart, and 9 in whom there as no record of the blood pressure, 108 (40 per cent.) d a systolic blood pressure of 180 mm. Hg and er. These 108 comprised 71 males (out of 206, at is, 34·5 per cent.) and 37 females (out of 59, 62·7 per cent.). It is noteworthy that among the omen the percentage of cases with a high blood essure is much greater than among the men.

Certain of these patients will be suffering from ronic interstitial nephritis, and in them the ognosis will be influenced by the result of tests dertaken to determine the renal efficiency, and by e appearances present in the retina and optic discs.

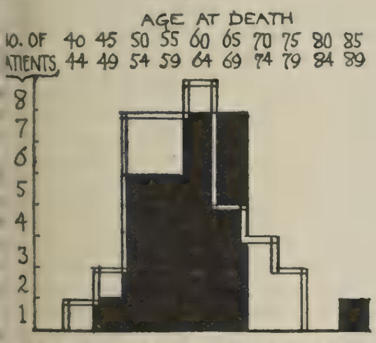
The significance of hypertension, apart from the ssibility of associated kidney disease, lies in the ct that a raised blood pressure adds to the load hich the heart carries, and in addition is generally sociated with a diffuse arterio-sclerosis; so that is type of patient is predisposed to cardiac distress d cerebral accidents. Even so, the careful figures of ackenzie[3] indicate that the expectation of life in ginal patients is not materially modified by an sociated high blood pressure. This is an unexpected ding. In his series the mortality curve of those tients with a systolic blood pressure of 180 mm. Hg d over, followed very closely that of the mortality rve of the whole series, though, if anything, death curred a little earlier in his high blood pressure cases.

The impression I have formed is, that if it be found ssible to modify even slightly an excessive blood essure, the symptoms of the patient are ameliorated, t I do not find that the expectation of life has been preciably increased.

Age at Death of Anginous Patients.

I have records of the age at death and the duration of ginal symptoms in 60 patients. In 26 the systolic blood pressure was 180 mm. Hg or over—in them the average age at death was 60·8 years, and with only two exceptions death occurred between the ages of 50 and 70. In the other 34 patients the systolic blood pressure was below 180 mm. Hg, and the average age at death—59·5 years—varied only slightly om the high pressure group. I was surprised to find at the average duration of life from the first pearance of anginal pain was, in fact, shorter in e low pressure group. It was 3½ years as compared with 4½ years in the high pressure group. Fig. 1 shows graphically the age at death in the two groups.

FIG. 1.

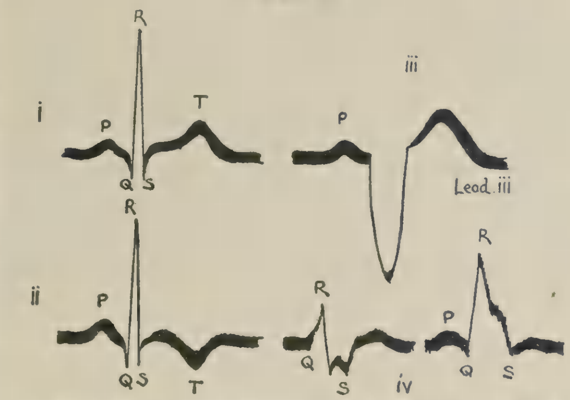


e of death in 60 patients. The 26 black squares represent patients with a systolic blood pressure of 180 mm. Hg or over. The 34 squares surrounded by double lines represent patients with a systolic blood pressure below 180 mm. Hg.

THE ELECTROCARDIOGRAPH IN PROGNOSIS.

Within recent years the functioning power and integrity of the myocardium have been investigated by means of the string galvanometer, and attempts have been made to correlate changes in the shape of the E.C.G. with prognosis. The fullest reports dealing with this have been from the Mayo Clinic at Rochester, by F. A. Willius,[4] who has kept careful records since 1914, the after-history of every patient being watched. J. E. McIlwaine and J. B. Boyd Campbell[5] have recently published interesting figures bearing on this subject; while B. S. Oppenheimer and N. A. Rothschild, in 1917,[6] reported 62 cases in which the Q-R-S complex in the E.C.G. was abnormal; 27 of these cases were patients suffering from angina. The average age of the 62 patients was 54. Within two years 50 per cent. were dead. They compare this death-rate with that of 22 other anginas in whom the E.C.G. were normal. The average age of this second group was 52. During a similar period only one in this group is known to have died; 17 of the 22 were known to be alive at the date of publication—16 fairly well and one in a precarious state. Figures such as these and those to be mentioned are arresting.

FIG. 2.



i. The normal electrocardiogram; P is due to systole of the auricles, Q, R, S, and T to systole of the ventricles. ii. Inversion of the T deflection, or T wave negativity. iii. The diphasic complex resulting from a lesion in the right branch of the bundle; the curve is reversed in a lesion of the left branch. iv. Two examples of "spread" of the Q-R-S complex; compare these with the normal Q, R, S in (i.) and (ii.). Inversion of T is only of significance in the absence of digitalis medication.

Hitherto the E.C.G. has been chiefly of value in analysing the various forms of arrhythmia. There are reasons for believing that in it we may find valuable assistance in prognosis. An E.C.G. represents graphically the variations in electric potential associated with each contraction of the heart. A normal systole is a coördinated contraction of the myocardium in response to a stimulus reaching it along well-recognised channels. Under normal conditions the stimulus does not reach the whole myocardium simultaneously, but in an ordered sequence. It flows along the conducting channels and reaches the various areas of the myocardium at such times and in such a manner that the resultant systole of the whole heart is an efficient coördinated movement. Any break in the functional continuity of the conducting channels causes a deviation from this orderly sequence. These deviations are revealed in the E.C.G.

An abnormal E.C.G., therefore, indicates that the fibres or groups of fibres composing the heart muscle did not contract in their proper relation one to the other. The commonest cause for this is some organic change in the myocardium, damaging or destroying the junctional tissues, the auriculo-ventricular (*a.-v.*) bundle, and Purkinje system: but functional block due to some temporary cause may be solely responsible. An outstanding example of this change in the E.C.G. curve is met with when disease obliterates one branch of the *a.-v.* bundle. There is then a complete alteration in the ventricular complex. There are also numerous other less dramatic deviations which have a definite significance. These are shown in Fig. 2. It is suggested that such abnormalities in the E.C.G. can be utilised in arriving at a prognosis.

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[3] Angina Pectoris, pp. 115–116.

[4] Archives of Internal Medicine, vol. xxx., No. 4, p. 434.

[5] Brit. Med. Jour., Sept. 15th, 1923.

[6] Journal of American Med. Association, 1917.

Willius started with the assumption that there *is* a relationship between an abnormal E.C.G. and the expectation of life, and he arranged those patients yielding an abnormal E.C.G. into three groups: (1) With significant T wave negativity, an inverted T; (2) with aberration or spreading of the Q-R-S complex in all derivations; and (3) with coexistence of these abnormalities, E.C.G. combining (1) and (2). Under each of these headings patients were arranged in clinical groups, and a careful series of controls collected comparable in age, sex, clinical type, and degree of decompensation. The total number of patients observed was 696, over a period of 5½ years. I have abstracted his figures dealing with angina, and they are as given in Table III.

TABLE III.—*Cases of Angina* (*Willius*).

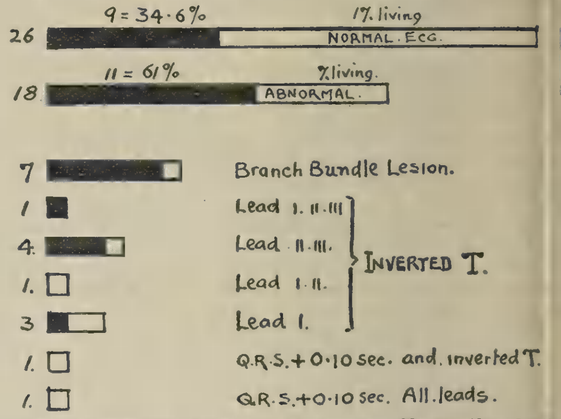
—	Total.	Heard from.	Dead.	Mortality per cent.	Controls.			
					Total.	Heard from.	Dead.	Mortality per cent.
A.—Inverted T:— Leads 1; 1 & 2; 2 & 3; 1, 2, & 3	58	47	27	60·0	58	43	11	25·5
B.—Q, R, S + 0·10 sec.:— All leads	10	9	6	66·6	10	6	2	33·3
Combination A + B ..	13	11	10	90·9	13	11	3	27·2
Grand total ..	81	65	43	66·0	81	60	16	27·0

We see, therefore, that Willius dealt with 81 cases of angina manifesting certain definite abnormalities, and with 81 controls—patients comparable in every way except that their E.C.G.'s were normal. He obtained full information concerning 65 patients, and of these, 43 died—giving a mortality of 66 per cent. In the 81 controls full information was obtained in 60, of whom 16 were dead—a mortality of 27 per cent. Willius has no hesitation in stating that the higher mortality is the result of vascular degeneration of the obliterative type, and he considers that the abnormalities in the E.C.G. are directly caused by these degenerative processes.

We cannot take this view as proven, though I believe we may fairly say that, other things being equal, an abnormal E.C.G. indicates the probability of degenerative changes in the myocardium, and in consequence a diminished expectation of life.

My personal experience is limited. I have taken E.C.G. records in 60 cases of angina, but as 16 of these have come under observation during the last six months they are not included, thus leaving 44 to be considered. Of these the E.C.G. was normal in 26. Nine are dead (one dying from pernicious anæmia), giving a mortality of 34·6 per cent. Of the 18 showing definite indications of abnormal conduction, 11 are known to be dead—a mortality of 61 per cent. The details are given in Fig. 3. In seven there was clear evidence of branch bundle block—six are dead. The duration of life after the onset of anginal symptoms was relatively short in each of the six. Dr. McIlwaine[5] has reported 15 patients with a branch bundle block, all of whom died in the course of 12 months—a mortality of 100 per cent. Of the 44 anginal patients there were 18 in whom it has been possible to determine the duration of the anginal symptoms from their onset up to death. In 11 with a normal E.C.G. the average duration of life from the onset of angina symptoms to death was $4\frac{6}{11}$ years; whereas in the smaller group of seven abnormal E.C.G. the expectation of life was only $2\frac{4}{7}$ years. These figures, though small, definitely corroborate the results obtained by Willius, McIlwaine, and others.

FIG. 3.



Electrocardiographic detail in 44 cases. Shows the death occurring in the 44 patients referred to in the text. The figures to the left indicate the number of patients represented by the corresponding column. The black spaces indicate the dead.

To me they are convincing, and bring us back t our original standpoint. We can find sure ground on which to base our prognosis in the integrity of the heart and arteries. The mortality in angina pectori varies with the health of the myocardium.

ANGINA MINOR.

Than Sir Clifford Allbutt[7] no writer has laid greate emphasis on the importance of confining the term "angina" to a group of cases in which there is, a the pathological basis, a lesion of the presigmoid area of the aorta; nor one who looks more suspiciously a any diagnosis which does not conform strictly to type Yet even Sir Clifford Allbutt admits and emphasises the gravity of minor angina, and no one has more aptly coined phrases to convey the sinister significance of certain slight and transient symptoms. If I interpret Sir William Osler[8] correctly he considered the term angina minor as applicable to the neurotic, toxic and vaso-motor groups, and excluded those patient presenting signs of cardio-vascular disease. I hardly think this a satisfactory use of the term. Angina minor indicates rather a transient or mild attack o anginal pain, but of so moderate and mitigated a severity that there is a risk of it being passed over a of little moment. Such cases I desire to emphasise for they are neither uncommon nor without importance. In them the prognosis is often gravely a fault, in most instances because of an incorrect o an inadequate diagnosis. The symptoms are no recognised as anginal, and their ominous significance is overlooked. The cardiac origin of the symptoms even when suspected, is too often dismissed and some other explanation is offered, because on examination no evidence may be forthcoming of cardio-vascula disease. The diagnosis must therefore be made in many of these patients on the subjective manifestations alone. These minor distresses may occur a premonitory warnings and are as essentially angina as the obvious major seizure, for as Sir Clifford Allbutt says, "The first muffled aortic groan is bu the prelude to the fiercer pang of stark angina." On the other hand, the major and minor may alternate or the minor may come as an aftermath or echo of a previous major attack. Such are of a particula nterest to every clinician, because the nature of the nalady has then been openly declared.

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[7] Disease of the Arteries, including Angina Pectoris, vol. ii.

[8] The Lumleian Lectures on Angina Pectoris, THE LANCET 1910, i., 697.

An accurate prognosis depends upon the recogition of the significance of these minor anginas. t is remarkable how frequently one elicits a history f slight substernal pain or other discomfort, someimes in peculiar and unusual sites, which arises as he result of effort, exposure, or excitement in patients vho finally present the typical clinical picture of rave angina.

It is not surprising that these early manifestations re often misinterpreted. For example :—

The first indication of angina in a man of 60 was a pain tuated just below the level of the thyroid on each side of he trachea, gripping in character and induced by exertion; a few months this was accompanied by substernal pain f a moderate intensity. Six months from the onset he was uddenly seized by paroxysms of anginal pain, lasting with arying intensity for 12 hours, during which his life was espaired of.

As a typical example of a minor angina the following ill serve :—

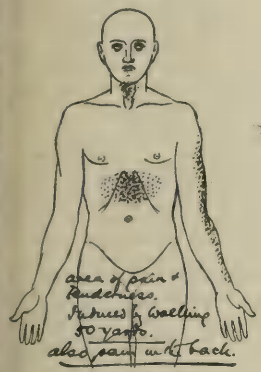
A man of 64 complained of a gripping pain of moderate tensity and a sensation of pressure, unaccompanied by ny dyspnœa. The pain was substernal, at the level of the ird space, and covered an area the size of a crown. It as induced by walking and ceased at once when he stood ill. If he persisted pain and numbness appeared in the ft forearm and hand. He first suffered in this way for vo years and had been under continuous treatment for indigestion."

In another patient, a man of 56, the first indication of ouble dates back to December, 1920, and consisted in pain ross the chest at the level of the nipples brought on by alking up a slight incline. If he stood still it subsided. It ased to trouble him, but recurred in March, 1921, when a agnosis was made of "indigestion" but, as the doctor id, "with mental reservations." A fortnight later he had e attacks of severe angina arising in the same area, and companied by pain extending from the tip of each shoulder wn the arms to the thumbs. He thought he was dying ring the acme of the attack, and was left emotional and pressed.

It would be easy to relate many similar instances here the slight and transient symptoms were llowed by the overwhelming distress of unquestioned gina. Probably the most common error is that of belling the discomfort of minor angina "indigestion," in the cases just related; and this diagnosis is ten accepted until the patient is in the grip of a ajor attack when, too late, the import of the previous indigestion" is obvious.

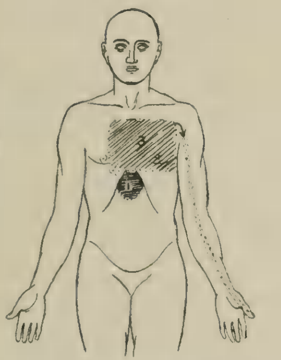
The only safe course is to view with suspicion eryone over middle age whose "indigestion" is duced by effort or exposure to cold, and which fades vay on the cessation of stress or when the patient ts comfortably warm. Such a history calls for reful examination of the whole cardio-vascular stem. This discomfort is usually substernal, a nse of tightness over the lower third of the sternum, metimes confined to the area of the xiphisternum, ore rarely definitely localised in the epigastrium, the pit of the stomach."

FIG. 4.



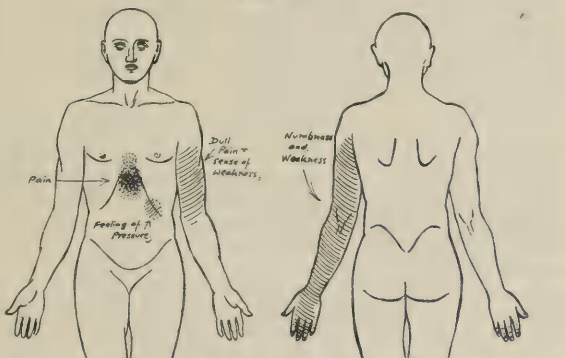
Male aged 64.

FIG. 5.



Male aged 52. Area of pain (2) not shown, being on the back.

FIG. 6.



Front and back view of male, aged 56, with minor angina and no severe pain, who died in a first attack of major angina.

This feeling of weight or oppression may be transient or of some duration. It may be the precursor of a devastating seizure or jog the memory of the patient and remind him of a former and terrible experience. The peculiar feeling of imprisoned flatus lodged behind the lower third of the sternum, or the sensation of food having "stuck on the way down" are suggestive. It is often true that with these substernal sensations there is an element of uneasy apprehension. I have seen 16 patients in whom the pain was definitely confined to the epigastrium, or took the epigastrium as its starting-point—spreading upwards behind the sternum if the patient persisted in the effort which induced the pain.

It is no adequate explanation to pass this pain off as being in every case nothing more than hepatic or other colic, though I admit that such an error in diagnosis does occur, and this possibility must be carefully considered. In one most typical case of epigastric angina, in which an autopsy was made, the stomach, duodenum, and gall-bladder were found free from any disease. It should be remembered that even when pain in the epigastrium is the dominant feature of the anginal attack, there are often additional symptoms, such as cramp-like and other sensations in areas indicating the cardiac origin of the epigastric pain, which in doubtful cases would help to clinch the diagnosis.

The associated phenomena may only appear when the effort inducing pain is continued in spite of the warning initial distress, and as the patient improves under treatment physical effort may fail to do more than provoke the primary epigastric ache.

A few examples may be quoted :—

A male, aged 64 (Fig. 4), with a systolic blood pressure of 200 mm. Hg and diastolic 100 mm. Hg, who experienced a dull aching pain in the epigastrium whenever he walked 50 or more yards, followed by pain between the shoulder blades, principally to the left of the spine. Simultaneously he felt an aching and numbness down the outer side of the left arm with occasionally an aching in the neck on each side of the larynx and trachea.

A male, aged 52 (Fig. 5), in whom walking brought on severe pain in the epigastrium at (1) on the figure. He experienced a sensation of being constricted in that area. This pain passed through to the back about the level of the angle of the scapula and was felt there as a broad horizontal band. It then spread over the front of the chest—the area indicated by (3)—and a cramping pain passed down the left arm in a narrow strip to the thumb. An attack lasted 3–15 minutes, and caused him to break out into a cold sweat. Under treatment the attacks became much less frequent and markedly less severe with great diminution in the area involved. The pain became focused in the epigastrium. The acute pain in the chest and the cramp-like feeling down the arm were no longer induced by effort. He died 16 months after coming under observation.

The description given by patients of their epigastric sensations varies considerably. It has been described as a "pain and tightness, with a gripping sensation," which disappears on "easing off." "An awful pain, induced by hurry, worry, or excitement." Another man whose pain was in the xiphisternal area and an inch or two below: "Pain, tight and very severe, attended by apprehension, with numbness in the arms and once or twice accompanied by vomiting." Another said: "An acute feeling of indigestion becoming something damnable."

The following case combined several features of interest in prognosis.

A male, aged 56 (Fig. 6), complained of pain in the pit of the stomach when he walked. This pain, which was not severe, passed up a few inches behind the lower third of the sternum and simultaneously he experienced a sensation of numbness and weakness in the left arm. During an attack he was conscious of a difficulty in breathing, but there was no increased frequency in respiratory movements. He was a big hefty man weighing over 15 stone. The blood pressure was within normal limits, and there was no evidence of valvular disease, though the heart was moderately enlarged. Deep cardiac dullness 5 inches to the left of mid-line, and the peripheral vessels definitely sclerosed. His symptoms dated from an attack of influenza some nine months previously. The pain was never agonising, nor was there any fear of impending death. He had noticed that the attacks became more and more easily induced. The E.C.G. showed the typical diphasic complex of branch bundle lesion. Here was a man who had never had any severe or devastating pain, and in whom the chief site and area first to be attacked was the epigastrium. The pathological lesion was progressing and there was an ominous abnormality in the E.C.G. He had a month in bed with apparent benefit. The attacks became fewer in number and less easily induced. However, seven weeks from the date of his first visit he died in a severe attack of major angina, which lasted an hour, and which came on while he was lying placidly in bed.

ERRATIC OR ECCENTRIC ANGINAS.

The erratic or eccentric anginas may take some peculiar forms. In each, however, the symptoms are associated with effort and tend to diminish on cessation of the exciting cause. Sometimes the first and possibly the only discomfort is felt in the face, neck, or wrist.

A woman of 52, with systolic blood pressure of 190 mm. Hg, had as a first indication a feeling of tightness in cheeks and mouth as if acutely engorged. This extended from under the eyes down to the jaws. These sensations might be the only responses to effort, but if she persisted, then followed a choking sensation in the jaws and lower neck, culminating in typical constriction around the chest, and finally a fully developed major angina.

In other patients a fullness and sensation of bursting in the eyeballs is the first response to physical strain. The pain may begin in the back between the shoulders, and, as in a man of 57, pass across the axilla round to the right nipple area, and extend down the right arm as far as the elbow. This man, after many attacks similar to the above, died in a severe seizure seven months after coming under observation.

When the pain appears to evade the sternal area and is focused in one or other shoulder and upper arm, possibly in the elbow or wrist, it is not uncommon to find that the patient has been under treatment for neuritis or muscular rheumatism. Careful cross-examination usually elicits a straightforward statement that these scattered pains bear a definite relationship to physical effort, and sometimes a history of one or more attacks of frank angina can be obtained.

As further examples of what one might call minor angina I will refer to two cases, in both of which the symptoms complained of were slight, but death ensued during a full-blown attack.

A man of 40 complained of a feeling of pressure and weight over his heart which he described as tension, and with this there was a sensation of weight in the left wrist which caused the arm to feel useless. These indications were first noticed in February, 1921. I saw him in November of the same year. Excitement or effort induced the symptoms. There was also a history of two syncopal attacks. He was a most irritable and highly-strung man, apparently organically sound. Three or four years ago he had to cease work owing to a nervous breakdown. His blood pressure was normal. The heart was not enlarged and the heart sounds were normal with the exception of slight accentuation of the aortic second. He had just returned from a long business trip in Europe and was alert, aggressive, and most irritable I admit I was unduly impressed by his nervous temperament, and consequently did not take a sufficiently grav view of the outlook. Within seven days he was seized b the first and only attack of typical major angina, and died.

The second patient was a man of 75, who for the las eight years had suffered from attacks characterised by feeling of tightness behind the sternum and a sensation o discomfort, sometimes becoming *almost* a pain, whic tended to spread to the left shoulder and down to th elbow. Walking up a hill or against a wind would induc this discomfort. Latterly the pain had been more easil excited, and on one or two occasions within the last si months had occurred while the patient was in bed—alway an ominous sign. When the pain was present his breathin was quite easy, and there was no element of apprehensio Physical examination gave a blood pressure of 160 mm. H systolic, and 80 mm. Hg diastolic, the size of the heart wa within normal limits, and there was no variation in th sounds; rate of the heart 80 per minute. Apparently healthy man with the exception of this discomfort— discomfort which was clearly that of minor angina. It wa only in the last 12 months that the symptoms had in an way forced themselves upon his notice, though, being a extremely careful man, he had sought advice with regar to them eight or nine years ago. In the end he was seize with major angina, which lasted off and on all through on day, ending fatally.

The following history of four brothers is wort recording as an excellent example of the familia liability and its importance, while it emphasises som of the points we have been discussing. The fathe died at 63—cause unknown. The mother died a 62 from a stroke. She had suffered from an initia stroke three years previous to her death. I hav notes of the four brothers, three of whom I have seen

In November, 1919, I saw J., the first, aged 60½. H complained of pain, epigastric in site, brought on by walking Five years earlier, when this pain first began, he was treate for indigestion. Latterly the pain had radiated upwar from the epigastrium into the jaws and throat, and to a poin just inside the left elbow. This last pain sometimes occurre independently of the thoracic disturbance. Systolic bloo pressure 160 mm. Hg, with pulsus alternans—indicating grave prognosis. He died suddenly in an attack of angin in December, 1921.

The second brother, A., aged 56, in February, 1920, con plained of "tightness on breathing," especially after walking and a sensation of a "swollen lump" under the left nippl "too big for the chest." Also of a pain which he ascribed t "indigestion" situated about the angle of the left scapul independent of meals but induced by effort. Pain sprea from this area into the left arm and down to the elbow He gave a history of syphilitic infection in youth, and h had noticed that the present anginal symptoms dated fro an attack of influenza in June, 1919. There was a moderat degree of arterio-sclerosis and the systolic blood pressur was 190 mm. Hg. Since Christmas last he has suffered fro an aching smart in the left arm and middle fingers, and i April his symptoms became more severe for a while especially the bursting sensation over the cardiac thrust The rate of the heart was then 72 per minute, the systoli and diastolic pressures 200 and 110 mm. Hg.

A third brother, T., aged 62, consulted me in December 1919. He was not conscious of any limitations; could dig walk, and work, but he was apprehensive because he knew that his three brothers suffered from anginal symptoms. could find nothing wrong. Heart normal, rate 88 pe minute, systolic blood pressure 150 mm. Hg; but in view of the family history I cautioned him against excessive effort Eleven months later, in November, 1920, he had two attack of terrible angina. He is still alive and feels in excellen health, and he has had no severe attack since that time, bu he has "reminders" if he hurries or is flurried. "A for of acute indigestion, if you understand me," was hi description, the pain being substernal about the level o the nipples. It passes away at once if he stands still.

The fourth brother is 61 years old; he has not consulte me, but his doctor tells me that for five years he has suffere from anginal pain in the left arm and in the beginning o June last he had a severe attack.

This is a remarkable series. The earliest symptom were of significance, also the sense of oppression cause by walking, the sensation of something too big for th chest, the pain about the angle of the scapula labelle indigestion, the epigastric pain brought on by effort and in one of the four, the dramatic and fata major attack preceded for seven years by varying manifestations of angina minor.

CONCLUSION.

I have attempted to review our position when aced by patients suffering from anginal pain, who sk to be told what the future holds for them. I ave tried to discover where help and guidance are to e found in estimating the mortality, knowing only oo well that there can be no certainty about the utlook. It is admittedly brighter, however, in roportion to the degree of sensitiveness of the entral nervous system and becomes correspondingly raver when evidence is obtained indicating disease r degeneration of the myocardium. The electroardiograph yields informative evidence of this ature, and it is found that the mortality in a series of atients is higher when certain well-defined deviations rom the normal electrocardiogram are present. gain, prognosis is often at fault because the signicance of some of the slight and earlier manifestations re misinterpreted. These minor anginas have ertain characteristics which should enable them to be ecognised for what they are—symptoms often unobrusive, yet significant, and only yielding up their secret careful cross-examination. They may be compared a gesture, slight but ominous, and full of menace.

A Lecture

ON THE

REATMENT OF DIABETES MELLITUS WITH INSULIN.

Delivered at the London Hospital on Oct. 15th, 1923,

BY O. LEYTON, M.D., D.SC., F.R.C.P. LOND.,
PHYSICIAN TO THE LONDON HOSPITAL.

IT is my intention in this lecture to relate my experiice, conclusions, and advice in the treatment of iabetes mellitus with insulin, based upon observations 100 cases. Up till now certain facts following the jection of insulin have been noted, but since the ost skilled physiologists hesitate in interpreting them, shall refrain from stepping where angels fear to tread.

Insulin injected into a normal animal diminishes the ercentage of sugar in the blood and the quantity of ycogen in the tissues, without causing any correonding acceleration in metabolism; it has been ggested that this is due to the katabolism of rbohydrate taking the preference over that of otein and fat. The injection of insulin into an animal prived of its pancreas leads to a fall in the sugar in e blood, which is accompanied by a rise in the spiratory quotient, showing that carbohydrate is ing oxidised. The addition of insulin to the blood rfusing a beating heart leads to an acceleration in e diminution of the sugar in the blood. The ultimate tion of insulin has not been determined, but it has en suggested that it consists in turning the α and β ucose into γ glucose, and that γ glucose is the only rm which the tissues can utilise. Before accepting is tempting theory the results of further observations ust be examined.

THE MAXIMUM ADVANTAGE TO BE OBTAINED FROM INSULIN.

To sum up—we have in insulin a substance which hen injected into a diabetic allows him to burn gar. The question we have to consider to-day is, w can this substance be used to the greatest vantage of our patients? In order to answer that estion I must remind you of the work done by Allen out ten years ago. His experiments consisted removing the greater part of the pancreas and serving the conditions which allowed life to be olonged. The conclusion he arrived at was at overwork of the pancreas led to deterioration that gland. This was an epoch-making disvery, the importance of which has not been lly appreciated, although it forms the basis of the successful treatment of diabetes mellitus. Most tissues tend to hypertrophy when given extra work, but so far the only tissue which has been proved to degenerate by overwork is the β cells of the islands of Langerhans in the pancreas. Allen showed that overfeeding overworked these cells. Many suspect, and some assume, that dextrose in the blood stimulates the cells, and that an excess of dextrose would therefore overstimulate and lead to their destruction. Clinical evidence supports this view. Therefore, if an attempt is to be made to arrest the disease in a diabetic, insulin must be used in sufficient quantity to prevent at any time a hyperglycæmia which will overstimulate the β cells.

THE LIMITS OF NORMAL BLOOD-SUGAR.

The sugar in the blood rises after a meal; therefore we must attempt to keep the range of sugar in the blood between two arbitrary limits. The lower limit is easily defined as that which does not cause symptoms of hypoglycæmia; the actual percentage of sugar in the blood differs in different people: comparatively few have discomfort until it falls below 0·08 per cent., but I have met three cases in which the symptoms developed whilst the blood contained a substance which gave a reduction equal to 0·25 per cent. dextrose. The symptoms of hypoglycæmia are protean. One of the first to appear is apprehension—a vague fear that something untoward is going to happen. Although this is very pronounced in some (even in men who have proved to be brave and able to face death without flinching), others pass through to later stages without developing apprehension at all. A sense of tremulousness, followed by a coarse tremor, exaggerated when fine movements are attempted, and leading to a general shakiness, is very rarely escaped. An attempt to write brings out the characteristic of this symptom; often it is followed by profuse sweating and a sense of intense muscular weakness along with palpitation of the heart. These symptoms may pass off without the administration of carbohydrate or may be followed by dizziness, incoherent speech, convulsions, and finally coma. The ultimate symptom of intense hypoglycæmia is coma and any or all the intermediate symptoms may be omitted. We do not know why one man is wretched with 0·08 per cent. sugar in his blood whilst another develops no symptoms when his blood-sugar is 0·06 per cent. Our endeavour is to prevent the blood-sugar falling sufficiently to lead to symptoms.

The upper limit is arbitrary. In my own practice I fix it at 0·15 per cent. because I have observed that in the majority of cases when this percentage is not exceeded the destruction of the pancreas is arrested. It is arbitrary, because no doubt there are cases in which 0·16 per cent. or even 0·17 per cent. would prove to be harmless. In medicine we have to recognise the idiosyncrasy of every individual patient, but until we have studied that idiosyncrasy we must treat him along the lines we have found suitable for the average. Let me explain. I have seen at least six patients who have owned to drinking over a bottle and a half of spirits daily for many years. One individual asserted that in South Africa he took 22 tots daily, but since he had been in England 18 made him muzzy. Now of these six individuals, examination failed to show in four of them that alcohol had damaged the tissues. The late Sir George Humphry recorded details of a series of 12 octogenarians, two of whom were habitual drunkards. My counsel to the four individuals was:

> "I am glad to be able to tell you that I have failed to find any evidence of disease in you, but that does not mean that if you continue to take so much alcohol you will not develop disease—most people do. To be candid with you, I must tell you that some people are almost immune from alcohol, and habitual drunkards have reached the age of 80, but at present we have no means of distinguishing those that are immune from those who are damaged irreparably; therefore, I advise you to cut down alcohol to 6 oz. of spirits daily."

The simile is fairly apt. I have seen people with a blood-sugar of 0·6 per cent. who, so far as one can tell, have had this excessive hyperglycæmia for years and enjoyed wonderful health. Until we have developed some method of distinguishing the vulnerability of the pancreas and other tissues to excess of dextrose, it may be wise to assume that 0·15 per cent. dextrose in the blood is detrimental.

Some authorities say that diabetes mellitus is often a progressive disease, even when a diet is arranged to keep the sugar in the blood normal. This is a loose statement, which conveys different meanings to different people. Those who take an occasional sample of blood from their patients four hours or so after a meal, and find it 0·12 per cent., have no right to state that the diet prescribed leads to a normal amount of sugar in the blood. Samples should be taken, at short intervals after meals, for two hours, depending upon the rate of absorption and the nature of the food given. When I state that the blood-sugar rises at no time above 0·15 per cent., I mean that samples of blood are taken after a meal containing one-third of the day's diet, and none rises above the limit.

Ideal Method of Control.

The ideal method of treatment necessitates the examination of samples of blood taken at various times of the day over a period of three weeks. In many cases this is not possible, and therefore it is my intention to describe two methods, one of which does not depend upon blood-sugar estimations. Perhaps the first question to arise is, Which cases of diabetes mellitus are suitable for treatment with insulin ? In my opinion all cases of true diabetes mellitus are suitable, but it may not be expedient to treat all with insulin. Conditions of glycosuria with hyperglycæmia other than diabetes mellitus may be treated with insulin without detriment and occasionally with advantage. It will lead to the sugar being utilised which would otherwise be excreted, but the benefit accruing as far as we know in cases of hyperthyroidism, glycosuria due to a pituitary tumour, or excessive activity of the suprarenal glands is not comparable with that in true diabetes mellitus.

Naturally one must exclude cases of glycosuria due to some cause other than hyperglycæmia. None of these present symptoms of diabetes mellitus such as thirst, polyuria, or wasting. When the facility for examination of the sugar in the blood is available no difficulty is met in the majority of cases, although now and then a diminution in the efficiency of the pancreas is discovered so slight that only the inexperienced can make up his mind whether there is any real departure from the normal. In these cases I think that it is wise to let the patient lead a normal life for a few months and then reinvestigate. But time does not allow me to go into detail on this question.[1]

A Makeshift Control.

When it is not possible to arrange for estimation of the sugar in the blood some makeshift method has to be adopted such as the following. Assuming that sugar which ferments easily with yeast has been found in the urine of a patient in a comparatively small quantity, say about 1 per cent., the patient is then put on a restricted diet containing about 20 g. of carbohydrate, 50 g. protein, and 100 g. fat—i.e., ½ oz. bread, 16 oz. vegetables, 2 eggs, 4 oz. fish, 3 oz. meat, and 3 oz. butter. The patient is kept upon this diet for four or five days, and then the sugar in the urine is re-estimated. If the sugar in the urine persists in amount over 0·2 per cent. the probability of the case being one other than true diabetes mellitus is considerable. The patient should then be put on a diet rich in carbohydrates, containing perhaps 200 g. per diem, and after two or three days the sugar in the urine is estimated again. If it is under 2 per cent. one may conclude that the case is not suffering from diabetes mellitus, and therefore will be unsuitable for treatment with insulin. A makeshift method of this kind will only prove correct in 70 per cent. or 80 per cent. People not suffering with diabetes mellitus but with a threshold in the region of 0·16 per cent. will be

diagnosed as suffering from true diabetes mellitu
I repeat that of course these cases in which ther
is great doubt do not present any of the symptoms
signs of true diabetes mellitus.

The next question is, in which cases is it expedien
to give insulin ? Amongst these, first come the recen
cases. All cases of diabetes mellitus of recent ons
should be given insulin in sufficient quantity
produce a hypoglycæmia for a period of several week
in order that the pancreas may be rested and its fun
tion restored. The second class consists of those wh
are unable to tolerate food sufficient to maintain th
weight of the body containing no excess of adipo
tissue. If a patient cannot take a diet representing
calories per kilogramme without the sugar in the bloo
rising above 0·15 per cent., insulin is essential for th
continuation of his life as a useful member of societ
The third class is the patients who can take more tha
25 calories per kg., but who find the diet very irksom
and their energy at a low ebb ; these should be give
insulin upon the strict understanding that they sti
have to keep to a rigid diet, but that the diet will
the less restricted the greater the amount of insuli
given. Each patient has to balance the benefit derive
from the insulin against the disadvantage of t
expenditure on insulin plus the discomfort of t
hypodermic injection. The fourth class consists
cases suffering from coma of diabetic origin.

DETAILS OF AUTHOR'S METHOD.

The details of the method I adopt are as follow
First an attempt is made to eliminate any source
infection. My observation recorded in 1917 has bee
confirmed by many ; the glycopyretic function
depressed greatly by bacterial toxins. A diet
arranged containing 30 calories per kg. body-weigh
for a patient weighing about 50 kg., 30 g. carbohydrat
50 g. protein, and 140 g. fat. This would not be a sa
procedure were insulin not available for administrati
if ketosis develop. Remembering that 58 per cen
of the protein is potentially carbohydrate, the rat
of fat to carbohydrate is 2·3 : 1. This has be
asserted to be a safe ratio to prevent ketosis, but th
assertion is true only if a proviso be added that
the carbohydrate in the diet is being utilised. W
may take the absence of glycosuria as evidence that
the carbohydrate is being utilised and therefore
glycosuria cease it may be possible to treat the patie
by diet alone. We may not assume that because t
glycosuria ceases, the diet adopted is suitable ; it
true that it is not wasteful in so far as the food is
being burnt, but if the diet lead to hyperglycæmia t
pancreas will be overstimulated and in time furth
deterioration will occur in the majority of cas
Assuming that the glycosuria persists, the patient
given 5 units of insulin before breakfast and aga
before the evening meal. Two-fifths of the tot
carbohydrate in the day's diet is given at breakfa
and another two-fifths at the evening meal.
pronounced glycosuria persist the dose of insulin
increased to 7½ units twice a day, and, if necessar
further increases are made until the glycosuria
controlled or the sugar in the blood is found to fa
below 0·08 per cent. shortly before lunch or towar
evening.

I should like to take this opportunity of emphasisi
the fact that hypoglycæmia is very harmless provid
it be recognised early, and that sugar be given by t
mouth or intravenously. I have grave doubts as
whether any case of diabetes mellitus can be treat
adequately with insulin without symptoms of hyp
glycæmia developing at some time.

If it be possible to examine the blood of the patie
at comparatively short intervals the insulin is graduall
increased or the time at which it is administered
altered until at no time does the sugar in the bloo
rise above 0·15 per cent. Occasionally it is found th
in order to prevent hyperglycæmia an hour after mea
a big dose of insulin must be given which subsequent
causes hypoglycæmia. The administration of t
insulin may be moved from half an hour to thre
quarters or even an hour before the meal ; if this do

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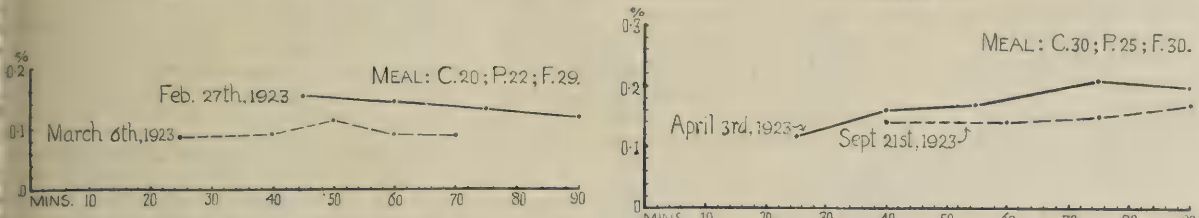
[1] Brit. Med. Jour., 1923, i., April 28th, p. 707.

not remedy the hyperglycæmia and the dose which prevents hyperglycæmia one hour after a meal causes hypoglycæmia two or three hours later, a small amount of carbohydrate, such as a biscuit, must be given about three-quarters of an hour before the time that the hypoglycæmia usually occurs.

RESTORATION OF PANCREATIC FUNCTION.

For a time the patient should be kept just free from symptoms of hypoglycæmia; this rests the pancreas. In a large percentage of cases (provided the dose of insulin and diet be kept constant) after weeks or months hypoglycæmic attacks will become more and more frequent, and may be prevented either by diminishing the insulin or by increasing the diet. Of the 16 private cases which I began treating in May, nine have had to reduce the quantity of insulin taken—some to about 30 per cent. of that required in June; one has not reported, and of the others circumstances did not permit me to submit them to a period of hypoglycæmia. This is undoubted evidence that treatment with insulin may lead to partial restoration of the pancreas.

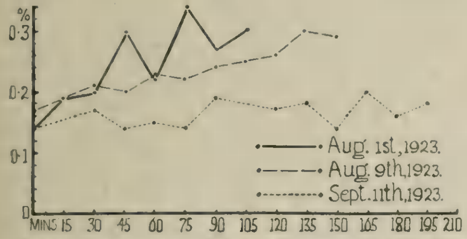
CHART 1. CHART 2.



Charts illustrating gradual restoration of pancreas and increase of glycopyretic power, as evidenced by concentration of sugar at different dates following meals of identical composition.

I should like to draw attention to other evidence leading to the same conclusion. In February, 1923, a young man who had developed thirst and polyuria a day or two previously was brought to me; insulin was not then available. The only way to rest the pancreas was by cutting down the diet and reducing the hyperglycæmia. The gradual restoration of the pancreas is illustrated by the two diagrams (Charts 1 and 2) showing the concentration of sugar at different dates following meals of identical composition. You will note that as time passed the glycopyretic power increased. Rest procured with insulin leads to the same result (Chart 3). A young woman suffering from severe diabetes was fasted for 18 hours, and then given intravenous injections of 10 per cent. solution of dextrose for three hours at the rate of 1 c.cm. per minute. Samples of blood were taken from the finger every 15 minutes. The curve obtained rose to 0·3 per cent. On repeating the observation a week later a similar curve was obtained. The patient was then submitted to treatment preventing hyperglycæmia for close upon five weeks, and the observation repeated. The blood-sugar did not rise above 0·2 per cent., demonstrating that the glycopyretic function had improved.

CHART 3.



Curves showing improvement of glycopyretic function after rest procured with insulin.

That the glycopyretic function may deteriorate if a hyperglycæmia be allowed to persist is proved by the hundreds of cases which have been treated by a restricted diet, and the diet gauged by the absence of glycosuria, with the result that the disease has made uninterrupted progress. An observation on a young patient in whom a hyperglycæmia persisted confirms this too (Chart 4). An identical method of introduction of sugar intravenously was adopted. The blood-sugar after an interval of a month's insufficient treatment rose to a higher level, showing a depression in the glycopyretic function.

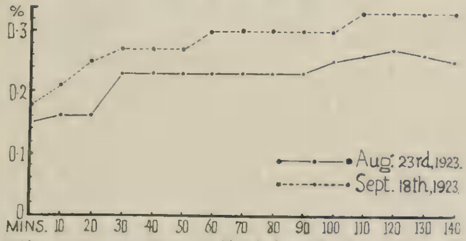
I adopted so elaborate a method as a long-continued intravenous injection of sugar because: (1) the absorption of dextrose when given by the mouth varies not only in different people but in the same individual from time to time, and hence intravenous injection was essential; (2) the continuous injection is to eliminate the time factor. If one were to give a series of injections one might miss the apices of the curve unless samples of blood were taken every minute, and a slight difference in the times would destroy the value of comparing two curves.

It is early days to draw conclusions, and I am the last to wish to appear dogmatic, but all the evidence at my disposal seems to point in the same direction.

TREATMENT WITHOUT BLOOD-SUGAR CONTROL.

If it be not possible to estimate the sugar in the blood, the same diet should be adopted as I have just described. Half an hour before the two main meals 5 units of insulin are given and continued for six days. If sugar persists in all the specimens of urine passed a gradual increase in the dose of insulin is made, about 1 unit a dose every third day, until most of the specimens of urine passed are free from glycosuria. When this is found to be the case the patient should be instructed in the symptoms of hypoglycæmia and told the remedy—namely, two lumps of sugar. The dose of insulin should then be still further increased very slowly until the patient develops definite signs of hypoglycæmia. If these occur four hours after the injection of the drug, it is probably wiser to give a biscuit three hours after the injection to ward off the hypoglycæmia rather than to reduce the dose of insulin.

CHART 4.



Observations on a young patient in whom a hyperglycæmia persisted, indicating that such persistence results in deterioration of glycopyretic function.

If the patient is free from glycosuria, and just misses hypoglycæmia by taking a small biscuit twice a day and persists in diet and dose unaltered, he will find that after a few weeks attacks of hypoglycæmia will reappear. Then a reduction in the dose of insulin should be begun and a gradual reduction be made until hypoglycæmia is just prevented. The absence of glycosuria is not to be taken as the method of determining the right ratio between the diet and the dose of insulin. In the treatment of cases without the estimation of the sugar in the blood it must be remembered that diabetes mellitus differs in one way from many diseases. Often symptoms assist in treatment, and when the patient feels better he is really better. For instance, an inflammation of the stomach causes the patient to lose his appetite, and if he eats he vomits; the stomach insists on rest. If a man eat an irritating material it is passed through the intestine rapidly and leaves the body. If the kidneys are diseased, appetite fails and the amount of work thrown upon them is diminished. But when the pancreas fails the symptoms are hunger and thirst, and everything seems to be arranged to hasten the departure of the stricken from this earth. Often he feels better when on a generous diet and with a high blood-sugar than when on limited diet with a low blood-sugar. So that some of the most valuable data in the treatment of other complaints are absent in diabetes mellitus. Therefore the practitioner who undertakes the treatment of diabetics with insulin must recognise this and recast his ideas on the relation between the details of treatment and the sensations of the patient.

The simile between the treatment of diabetes with insulin and the treatment of myxœdema with thyroid is not very apt. The variation of the activity of the thyroid from time to time is, as far as we can tell, only a minute fraction in the variability of the activity of the pancreas. Insufficient thyroid will not lead to progress in the destruction of the thyroid, nor will sufficient thyroid given by the mouth arrest the destruction of the surviving thyroid; and anyway there is no difficulty in supplying sufficient thyroid by the mouth even when the destruction of the gland is complete. Cessation of administration by the mouth will not lead to death within two or three days. The whole process has much fewer risks, and although it needs care the need is not so great.

I do not for a moment wish to imply that diabetes mellitus should not be treated with insulin even by the busiest practitioner; but I state definitely that there is little hope of getting the best results from insulin without the expenditure of much labour. Assuming that the patient is best off on a definite diet with 25 units of insulin twice a day, that patient will run less risk if he is on the same diet with 20, 15, 10, or even 5 units of insulin twice a day than on none. The proverb that half a loaf is better than no bread undoubtedly applies to insulin.

Having arrived at the dose of insulin required to prevent hyperglycæmia in a patient upon a definite diet, the patient may elect to add to his diet. This will need a fresh series of observations, and therefore it is wise for the patient to decide early upon what diet he will be happy, and how much he can afford to spend upon insulin. One of these factors must be fixed and the other altered to suit.

Unexpected Causes of Hypoglycæmia.

I have already expressed the opinion that everyone who treats patients with insulin, and everyone who receives insulin, should be acquainted with the symptoms due to an excess, or rather, due to insufficient sugar in the blood. The causes for hypoglycæmia are occasionally unexpected; for instance, one patient developed convulsions four hours after an injection of insulin, although for many weeks he had had the same dose of insulin and the same amount of carbohydrate, protein, and fat for breakfast. The explanation consisted in mental perturbation, which had paralysed his stomach and delayed the absorption of the porridge and toast which formed part of the meal. This mental condition arose from the excitement of a heated argument. I have seen symptoms of hypoglycæmia develop due to an excessive dose of an aperient, which has hastened the food through the intestine and prevented absorption. Anything which prevents absorption will lead to hypoglycæmia; if the pancreas goes on strike and ceases to secrete a starch-splitting ferment, severe symptoms may develop. When this is found to occur, carbohydrate must be given as sugar if the administration of diastase does not meet the difficulty.

Treatment of Coma.

The treatment of coma due to ketosis still causes anxiety, and no routine treatment proves successful in all cases. First let me impress upon you that coma is not due to an excess of sugar in the blood, whilst too little sugar may lead to coma. I have found 0·9 per cent. of sugar in the blood of a patient without his suffering from any symptoms whatever, whilst 0·6 per cent. may be maintained for a long time without causing anything more than neuritis and endarteritis. Therefore, if there ever be any doubt whether the patient is suffering from coma, due to ketosis or hypoglycæmia, sugar should be injected intravenously; that can do no harm, whilst an injection of insulin may hasten the end.

In my opinion a 20 c.cm. syringe ready charged with a sterile aqueous solution of 10 per cent. dextrose should be by the bedside of every patient suffering from coma when treated with insulin, and if the patient relapse into coma after having made an apparent recovery, the contents of the syringe should be injected very slowly into a vein. If the coma be due to hypoglycæmia the result is miraculous; the patient regains consciousness within a minute. If the result be negative, a second syringeful may be given. The continuation of coma after the introduction of 4 g. of dextrose indicates that the coma is due to ketosis, cerebral hæmorrhage, uræmia, or some cause other than hypoglycæmia.

Treatment of Ketosis and Digestive Disturbances.

The details of treatment are—first be satisfied that the coma is due to ketosis; the onset with air-hunger and the smell of acetone in the breath is very suggestive. Diacetic acid is, as a rule, in the urine, but not invariably. Estimation of the percentage of carbon dioxide in the alveolar air may be used to confirm the diagnosis. Usually it is found that it is under 2·5 per cent.—i.e., less than half the normal. A fairly large dose of insulin, say 30 units, should be given either hypodermically or intravenously along with 30 g. of dextrose unless the sugar in the blood be estimated straight away; then, if it proves to be above 0·3 per cent., no dextrose need be given. After an interval of three to four hours a second dose of 30 units of insulin should be given along with an intravenous injection of 30 g. of dextrose. This may be continued if necessary until the patient becomes conscious. As soon as the patient is conscious give lemonade containing sugar, so that he may receive 3 g. of sugar for every unit of insulin which is injected. Do not remove the syringe containing dextrose solution from the bedside, and give orders that if coma redevelop, whoever is looking after the patient must attempt to give the contents of the syringe. If the vein be missed and the sugar runs into the subcutaneous tissue, less harm will result than if treatment is delayed until the doctor be fetched. He would arrive in time only to write the certificate of "death—hypoglycæmia."

We have had evidence that hypoglycæmia may develop ten hours or more after the last injection of insulin, even when plenty of carbohydrate has been given by the mouth during the interval. The excess of sugar will be removed by the kidneys, and the extra damage done to the pancreas by overstimulation for an extra day or two is comparatively unimportant. Administration of large quantities of sodium bicarbonate is of little value.

The problem arises as to what to do if the patient loses his appetite or suffers from vomiting. The cessation of insulin, which at first sight seems to be a reasonable treatment, I have seen lead to the development of a ketosis in a patient who had become rather fat, and therefore, perhaps, it is wise to diminish the insulin and give approximately 2 g. sugar as a rectal injection for every unit of insulin. If along with the nausea and vomiting there be diarrhœa, then the insulin should be stopped. If ketosis develop intravenous injections of dextrose along with insulin are indicated.

As a rule the injection of insulin hypodermically is followed for a very short period by a sensation of stinging, which should be the only discomfort to arise. But in some people an inflammatory change which continues to increase for two or three days may be noted. In these cases it is wise to change the preparation of insulin. Often the antiseptic has some effect; different manufacturers use different antiseptics. Occasionally the inflammatory change is sufficiently severe to make the patient decide to cease the treatment. When this occurs, it is worth while noting the effect of intramuscular injection. The sites chosen should be those that are used for the injection of emetin—namely, into the erector spinæ muscles and the upper edge of the gluteus maximus.

THE PATHOGENESIS OF CEREBRAL DIPLEGIA.*

By JAMES COLLIER, M.D., F.R.C.P. Lond.,
PHYSICIAN TO ST. GEORGE'S HOSPITAL; PHYSICIAN TO THE NATIONAL HOSPITAL.

Dr. Collier began his address with a tribute to Dr. Little, senior physician to the London Hospital and founder of the Royal Orthopædic Hospital, for the accuracy and clinical acumen of his original monograph describing the disease, which was written nearly 80 years ago. Some of those who had written upon the subject since had written less clearly and the student of the present day often had but a hazy idea of the pathology of Little's disease.

It was in THE LANCET in 1841 that Little first called attention to the Influence of Abnormal Parturition, Difficult Labour, Premature Birth, and Asphyxia Neonatorum, on the Mental and Physical Condition of the Child, especially in Relation to Deformities. Little first established the incontestable fact that diplegia is often associated with abnormalities of birth, at the same time stating "it is obvious that the majority of apparently stillborn children whose lives are saved by the attendant accoucheur, recover unharmed from that condition." He theorised the lesion as a widely spread fine lesion of the cerebral substance which could affect one part of the brain more than another. He showed that the less severe cases may progressively recover in the course of years, thereby proving that the slighter degrees of the lesion were reparable, and lastly, he excluded gross injuries to the brain and gross lesions generally from the ætiology of the disease which bears his name, and pointed out its common association with microcephaly. Strictly speaking, said Dr. Collier, the term "Little's disease" should be confined to diplegia which is associated with difficult birth. Actually it is used by the French school of every variety of cerebral diplegia present from the time of birth. Brissaud strove hard to confine it to the paraplegia forms occurring in premature children.

He continued: Following on the work of Erb and Charcot in 1875 a heated controversy was waged as to whether the primary spastic paraplegias of childhood were of spinal or of cerebral origin. The battle went against the supporters of the spinal theory, and in the end, owing to the excellent work of Wolters and of James Ross, of Manchester, it became universally accepted that the lesion was cerebral in site. During this controversy much pathological material was collected, with the result that the anatomical finding was generally accepted to be an atrophy and sclerosis of the convolutions, remarkably symmetrical, sometimes general, producing a walnut-kernel type of brain, sometimes local and incident upon any part or parts of the convexity, but most often affecting the Rolandic region and in the paraplegic forms most noticeable in the paracentral region, without any sign of vascular lesion nor of meningeal involvement. This was the "lobar atrophic sclerosis" of the French school. It was recognised as the end-result of some previous pathological process, no explanation of the nature of which was forthcoming. The important fact was also emphasised that the degree of the atrophic sclerosis present often did not correspond with the severity of the clinical picture; the paralysis might be severe and the atrophic sclerosis slight. The French authors agreed that the symptomatology is determined by other than the anatomical condition as yet brought to light. In other words, the unknown initial pathological process may at the time of death be much more extensive than the atrophic sclerosis which follows in its train. The correctness of this conclusion has been supported by all the subsequent evidence.

The Case for Meningeal Hæmorrhage as a Cause for Diplegia.—In 1885 Dr. Sarah McNutt wrote a thesis upon this subject important not only on account of the excellence of her clinical report and pathological examination, but chiefly on account of her false deduction which aided by the support of Sir William Gowers had the most amazing and inexplicable effect upon public opinion as to the pathology of diplegia. It introduced a glaring error which has remained unto this day and which though pathologically untenable seems to have defied all the attempts which writers during the past 25 years have made to eradicate it. Dr. McNutt described a case of double infantile spastic hemiplegia in a child born with instrumental labour, who from the time of birth showed signs of very typical general spastic diplegia and which died at the age of 2½ years.

It is obvious that the pathological process in the brain had begun long before birth, from the primitive arrangement of the convolutions and from the condition of the pyramidal tracts. It was a typical condition of lobar atrophic sclerosis. Had Dr. McNutt remained content with her description of this case no harm would have been done. But she proceeded to refer to another case which she had published and figured, of a child delivered by the breech with easy labour, who from the fourth day onwards had severe convulsions and on the twelfth day began to develop left hemiplegia which became complete. Death occurred on the twenty-second day. Upon necropsy the left hemisphere was found normal, but the right hemisphere was covered by a clot which had broken up the central convolutions, the optic thalamus, and the corpus striatum, and which was only separated from the lateral ventricle by the ependyma. Dr. McNutt then lays down that "it is legitimate to conclude that had this second child lived it would have developed by cicatrisation the shrinkage of the central convolutions and the convergence of the neighbouring gyri which was found in her first case and which characterise the most marked cases of diplegia." She then generalises meningeal hæmorrhage as the universal cause for infantile spastic states dating from the time of birth and associated with difficult labour. And this opinion expressed by her has gained the widest acceptance, so that one reads on every hand that meningeal hæmorrhage is a proved cause of diplegia. Yet her case of diplegia did not date from birth, for the anatomical findings showed that the disease must have been installed early in fœtal life. And her case of meningeal hæmorrhage was not the result of difficult labour for the birth was described as having been particularly easy. It was not a case of meningeal hæmorrhage, but a large intracerebral hæmorrhage which ploughed up everything from the basal ganglia to the cortex, ultimately bursting upon the surface. This cerebral hæmorrhage did not occur at the time of birth, but 12 days after birth when the signs of the hemiplegia first appeared.

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* Abstracted from a Presidential Address delivered to the Neurological Section of the Royal Society of Medicine on Oct. 11th, 1923. The address appears in full in the current number of *Brain*.

This is the whole evidence upon which the case for meningeal hæmorrhage as a cause for diplegia rests. Yet it is meningeal hæmorrhage which still catches the eye in the foremost place among the proved factors of diplegia in most text-books of neurology. Strumpell in 1885 brought forward undoubtable cases of post-natal diplegia and infantile hemiplegia due to polio-encephalitis, and he argued this initial pathology for infantile spastic states in general. There does not appear to be much evidence in favour of fœtal encephalitis, but it seems difficult entirely to refute the possibility.

Brissaud's Theory of Premature Birth.

In 1894 Brissaud started an entirely new conception of the origin of diplegia or, rather, of certain forms of diplegia, prematurity of birth. It is obvious, however, that the immense majority of prematurely born children who survive, complete the development of their nervous systems in good time, and do not develop Little's disease. The major incidence of premature birth in connexion with paraplegic forms of diplegia, though incontestably true is not universal enough to help Brissaud's argument, and there is the much more subtle explanation that the dyscrasia which produced the pyramidal trouble also caused the premature birth.

Meanwhile the steady accumulation of pathological evidence called for a conception of primary neuronic degeneration as the initial morbid process in diplegia. Cotard as early as 1868 drew attention to the atrophy of the pyramidal cells out of all proportion to the shrinking of convolutions and sclerosis. Warda in 1895 found absence or degeneration of cortical neurones in a case of pre-natal diplegia that was certainly not secondary to any sclerosis or other gross lesion. Mya and Levi in 1896 found arrest of neuroblastic growth with degeneration of such neuroblasts as had developed their processes. Some of the most severe of the pre-natal cases were found to have no macroscopic lesion at all, but an almost universal degeneration of cortical cells, pointing to the advent of a rapid degenerative change shortly before birth. Cases of post-natal diplegia with insidious onset and clinically identical with the pre-natal cases, two of which I published in *Brain*, 1900, were recorded having their onset throughout childhood even as late as the twelfth year (notably a remarkable case published in *Brain* by Campbell with onset at the twelfth year), and in all these cases primary neuronic degeneration was the lesion found. Further the occurrence of optic atrophy in about one-sixth of all cases made any other explanation than a primary neuronic degeneration difficult. Dejerine always supported a neuronic pathology, and he very rightly contended for a clinical and pathological separation between the diplegias and the double hemiplegias.

Freud's Theory.

In 1897 came the monograph from Freud of Vienna, which still remains the most complete and authoritative exposition of this subject. He seems to have been the first to use the term cerebral diplegia as indicating a bilateral symmetrical defect of the brain, not the result of gross lesions, in contra-distinction to the hemiplegias and double hemiplegias which he considered always to be the result of gross lesions. He argued, and indeed I think that he proved that all diplegia dating from birth, and which had been attributed to abnormalities of birth, really had its pathological origin long before birth in intra-uterine life. He piled up statistics to show that every writer upon this subject had admitted that 40 per cent. of all cases of diplegia dating from birth were without any possible factor in connexion with birth. He analysed most carefully the circumstances attending the difficult birth in diplegia, and he sums up in these words: "Premature, precipitate and difficult birth are not causal factors in the production of diplegia; they are only associated symptoms of deeper-lying influences which have dominated the development of the fœtus or the organism of the mother; the only cerebral paralysis which results from difficult birth occurs when the brain is lacerated, and this takes the form of a monoplegia or hemiplegia or rarely of a double hemiplegia, and the anatomical result of this lesion is entirely different from the findings in the brains of diplegia."

Freud brought forward reasons for linking up pre-natally installed diplegia with the cases which come on insidiously during childhood, at any age up to that of puberty, arguing a cause for primary neuronic degeneration of the brain which might be incident at any period of fœtal life or during childhood, and he cites some remarkable cases in support of this theory. The one distinction which at first seems to separate the congenital cases from the post-natal cases is the course of the disease. Most of the pre-natal cases tend to improve, some of them to a remarkable extent. The post-natal cases never improve, but progress more or less rapidly to a fatal issue while some few become arrested. Yet progressive pre-natal cases are known, and I have seen several of them, and both pre-natal improving cases and rapidly progressive post-natal cases have occurred in children of the same mother. It seems to me that there is every reason, both clinical and pathological, to think that they belong to one class of disease, in which a primary degeneration of cerebral neurones may occur at any period during fœtal and during adolescent life.

The Ætiological Factors of Diplegia.

I now turn to a consideration of the ætiological factors of diplegia, long lists of which will be found in all modern descriptions, with the remark that 40 per cent. of all the cases are without even the most slender causal antecedents.

Hereditary and Familial Influences.—These are exceptionally rare in the common types of the disease. Yet there are recorded instances in which a mother, who was the subject of pre-natal diplegia, has given birth to a child afflicted with the same disease, an example of which was reported by Oppenheim. Familial incidence in which pre-natal and post-natal cases occurred indiscriminately have been many times recorded, as in the reports of Krafft-Ebing, Feer, Newmark, and Pelizain already referred to. Post-natal cases of a progressive type with a heavy familial incidence have been recorded by Souques, by Pibram, and by Hochhaus, while this ætiology is also very obvious in the type of amaurotic family idiocy and familial spastic paralysis. Diplegia may also in rare instances be coincident in the same families with other degenerative diseases of the nervous system, notably hereditary ataxy and myopathy, and certain facts showing this relation have been pointed out by Koenig, Strumpell, Bernhardt, Franz Schultze, and by myself. Consanguinity of parents has occurred not rarely.

Maternal Ill-health During Pregnancy.—This factor has been placed in the most important position by many writers, and I think without any justification, so rarely is it met with. There is, however, one important exception, and that is the presence of syphilis. Its incidence is admittedly rare. Naef and Feer examined 179 consecutive cases and were unable to prove the presence of syphilis in any one case. Dejerine insisted that syphilis was only a factor in that it caused premature birth. Yet I have seen diplegic children with the most obvious signs of congenital syphilis, and so have many others. The most conclusive evidence is that in pre-natal diplegias, a condition of the brain is sometimes found in which granular ependymitis, decortication, and the general resemblance to the brain of general paralysis is so striking as almost to prove the point. What is needed is an examination of the Wassermann reaction in a long series of cases.

Abnormalities of Birth.—I have already excluded these conditions as causal factors and placed them as common, but by no means constant, clinical associates of diplegia, indicative of something wrong with the fœtus, or of something wrong with those mysterious elations between mother and offspring which deter-aine a speedy delivery at full time. My authority is, he inconstancy of these so-called factors, the insuper-ble difficulty of referring one and the same patho-ogical condition to such widely different causes as remature, precipitate, and prolonged birth and to sphyxia, the absence of any reasonable explanations r pathological findings to show how such events ould produce the disease, the opinion of modern riters upon the subject, and the complete negation rom the conditions of the brain found in every case.

Deductions from the Pathological Material.—It is emarkable that no lesions have been found in any art of the nervous system except in the cerebral emispheres. Since the brain increases in size and levelops during fœtal life by the evolution and levelopment into complete neurones of the neuro-lasts of which it is originally composed, the terms o frequently met with in the literature of this ubject, "agenesia" and "arrested development," imply mean that some harmful process has affected he brain during its period of development. I have ttempted to prove in my foregoing remarks that uch arrest of development due to an affection of he brain during fœtal life, and not to any event onnected with birth, is to be found in the brains of iost cases of diplegia in which the symptoms are resent from the time of birth. And I have further rgued that the first signs of the affection are expressed neuroblastic and neuronic death or degeneration.

If we liken the brain from the commencement of s development to a garden in early spring, well own with seeds—the neuroblasts—some of which erminate early, some meantime and some late, those erminating early perhaps of a hardier sort, those erminating late perhaps of a more tender kind, nagine what might be the effect of a noxious influence -a sudden sharp frost, for example, upon this garden. ccording to its severity and the time when it arrived, might, if it caught all the seeds in a condition of ermination and growth, leave this garden lifeless. r it might spare those seeds as yet ungerminated nd those seedlings which had attained sufficient rowth and robustness to resist its influence, and ffect only certain kinds of the seedlings perhaps ccording to the state of their development, to their eath and destruction. Or the seedlings affected by ne frost may not be all killed; some or all of them iay be simply "cut," and their leaves for the time ithered, and these may be able in some degree to new their growth and attain a maturity, in some ases perfect, in others stunted and imperfect, in all ases retarded. Lastly, this untoward weather may ontinue and crop after crop may perish in a progres-ive destruction. Some such process as I have put efore you in this homely simile of the seedlings nd the frost will, I submit, best serve to explain oth the ætiology, the symptomatology, and the athological findings in cerebral diplegia. This ypothesis will in a measure explain the restriction f the affection to the cerebrum, for this is the latest develop, the highest, and perhaps for these reasons he most vulnerable, part of the nervous system. t will explain the tiny brain of severe microcephalic iplegia, with no differentiation between grey and hite matter, and the most primitive type of convolu-ons, for here is widely spread neuroblastic death arly in fœtal life, with no myelination because no rocesses have been developed from the neuroblasts. will explain the strangely symmetrical and even rictly systemic affection of the cerebrum; the yramidal region alone affected, the frontal and ccipital regions alone affected, the parietal and frontal gions symmetrically involved, while the pyramidal nd occipital regions escape, the corpora striata alone ffected, as in the cases of choreic diplegia and con-nital athetosis examined by Anton and Demange. will explain those severe cases in which no signs f arrested development and little naked-eye change re found in the brain, for here the cerebrum has been ard hit at a time when its development is almost omplete. It will explain the progressive improvement of the slighter cases in the possibility of regrowth in partially or temporarily damaged neurones, and also those cases, both pre- and post-natal, which show a progressive degenerative course.

This hypothesis is not altogether original with me, though its development in this form is original. It was suggested to me by the writings of Brissaud on premature birth as the one and only cause for paraplegic diplegia. Premature birth was Brissaud's frost which cut the pyramidal seedlings. On my hypothesis it was the frost which caused both the premature birth and the pyramidal deficiency simultaneously. The cause of the initial process is entirely mysterious, as is the case also in so many degenerative nervous diseases, as, for example, the hereditary ataxies, myopathies, and progressive muscular atrophy. It may be of the nature of a toxic or of a deprivation process, and is likely to be of more than one variety. If there is any difficulty in the conception of such a cause acting for a time only, and subsequently allowing of regeneration of nerve elements, it is exactly paralleled by the neuronic affection of polyneuritis. If the action of the cause for a time only producing degeneration, followed by final arrest, is hard to believe, this is the invariable habit of the cause of peroneal atrophy, where the degeneration commencing at a certain period of life, progresses for a time, and comes always to a final arrest within comparatively narrow limits. The picking out of the systems of cerebral neurones by this disease may conceivably be due to the time of incidence of the essential cause, or to its physiological selective capacity for certain of the elements only, as occurs so commonly with poisons, or to a combination of these two events. And, further, the phylogenetic age of the several cerebral systems may be a factor.

I would put these conditions forward in explanation of the universal affection and of the various local affections of the brain which are found in diplegia: (1) The severity of the cause, which may affect all the cerebral elements indiscriminately, giving rise anatomically, and if acting early to a small primitive type of brain, destitute of neurones, and causing clinically a condition of idiocy with diplegia and blindness; (2) the time of development at which the cause is active, which may determine which systems are affected and which are spared, in the local atrophies of the brain; (3) the physiological selective capacity of the cause to affect some systems and not others; (4) a cause which may be temporary in its action and which for this reason only picks out systems which are vulnerable at the moment; (5) a cause which may be continuous in its action and which results in a progressive diplegia.

If my reasoning be legitimate, then we must class together all the clinical results which primary neuronic degeneration and its sequel general or lobar atrophic sclerosis produce, from microcephaly with idiocy alone, through the wide range of pre-natal and post-natal diplegias to the simplest forms of paraplegic rigidity. The one anatomical lesion which has been found in all cases of diplegia since it was first pointed out by Cotard in 1868 is disappearance of the neurones of the brain or degeneration of these. I hold that this is a primary degeneration of the neurons, and that it is the essential and primary lesion in all cases of diplegia.

Arrest of development of the brain and of its outgoing paths is often found. This is the natural consequence of the foregoing neuronic lesion when this occurs during the earlier periods of development of the brain, and consequently it only occurs in pre-natal cases. Atrophic sclerosis of the brain is the natural consequence of the neuronic decay. It is more marked the earlier in life the neuronic decay occurs and the longer the patient has lived after the degeneration has been installed. In some varieties of diplegia, of which the Waren Tay-Sachs type is an example, no sclerosis follows the neuronic degeneration, and this is perhaps due to a peculiar nature in the cause. Gross lesions are rarely found.

I submit that the essential anatomical cause of diplegia is a primary neuronic degeneration due to factors which are at present entirely elusive, with the exception of rare cases in which syphilitic infection of the brain is certainly the provoking agent. This conception of the pathogenesis seems to me to be compatible with all the pathological evidence which has been recorded, and to best explain the symptomatology and clinical aspect of this class of diseases.

THE OPERATION FOR
ELEPHANTIASIS SCROTI.

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This operation, which I have done for the last six years in Zanzibar, is a modification and simplification of that described by Fauntleroy, of America. The cases have varied very considerably in size and weight, 10 lb. being the smallest, 30 to 40 lb. quite common, and 91 lb. the heaviest. Earnest endeavours were made at first to secure absolutely aseptic results, but the situation and very nature of the elephantoid tissue rendered this ideal very difficult to realise, proper preliminary cleansing of the gnarled and knotted interstices of the skin being almost impossible, so that with the exception of a few cases a certain amount of suppuration has occurred at any rate in the line of suture. Fortunately, however, this makes no material difference to the ultimate very satisfactory result, nor is the duration of the convalescence noticeably prolonged, nor to be compared with the time required for healing with the old-time methods of performing this operation.

Partly by choice, mostly of necessity, I work single-handed, and beyond the assistance of one or two native hospital boys in supporting the tumour at the requisite times, no one touches the operation area but myself. Indeed, the operation being performed in the lithotomy position, an assistant would have difficulty in gaining access to the area, and would therefore not be of much use. Fauntleroy does not use a clamp or tourniquet, and in deference to his great experience the method was given a thorough trial, but the great convenience, the saving of time and of hæmorrhage achieved by the use of a screw-clamp at the base of the tumour have led me to adopt this form of tourniquet in every case. There are one or two pitfalls to be guarded against: first and foremost, the possibility of a scrotal hernia, single or double. In these pachydermatous subjects it is not always easy to determine if a hernia of long standing be present or not. If such a complication be found a radical cure should be effected and allowed to heal thoroughly before the scrotal tumour is attacked. Undescended testicle is quoted, but is a complication I have never met, and one which might surely be safely left alone when discovered.

Technique.

The patient lies in the lithotomy position, and the scrotum, which is completely enveloped in an improvised bag of aseptic material, is permitted to hang down over the bottom edge of the table. A large towel is wrapped around the tumour and one or two assistants lift the mass and drag it down in a horizontal direction. The clamp, which is of the simple double-bar variety, with butterfly nuts at each extremity, so that it can be tightened or loosened at will during the operation, is then applied, and adjusted as far up on the scrotum as possible, and as close to the patient's trunk as can be managed. It is screwed up firmly, and the tumour gently released and allowed to resume its dependent position; the dressings are removed, towels are adjusted and clipped, and a final generous application of tinct. iodi. to the mass completes the toilet. For a big case it is well to have at least half a dozen knives ready, as the gristly tissue easily turns the edge. The flaps are mapped out as follows: Starting on the right sid
about two inches from the middle line, and one in
from the junction of the scrotum and the abdomin
wall, that is, just below the clamp, a horseshoe-shap
incision is commenced, extending vertically downwar
over the scrotum until the level of the preputial openi
is reached, when the incision curves horseshoe-wi
to the left, passing below the preputial orifice. It
met by a similar incision which has started al
two inches from the middle line, and an inch below t
commencement of the scrotum on the left side, and t
horseshoe is complete. A distance of 4 to 4½ in. shou
separate the vertical limbs of the incision, for it is t
flap which is eventually to enwrap the penis.

A further incision is made at a right angle to t
right vertical limb of the horseshoe, extending in
lateral direction to the posterior aspect of the tumo
where it is continued round to meet the left verti
limb; thus, with the exception of the space betwe
the limbs of the horseshoe, this incision complete
encircles the tumour. The level of it cannot be exac
laid down, for in settling it three points must recei
due consideration: the first, that as far as possible o
sound skin should be left above the incision (this
generally, but not always, practicable); the secon
that from the sound skin left behind the new scrotu
is to be fashioned, and that in the new scrotum roo
must be found for the probably much thickened a
lengthened spermatic cords, and the testicles wi
their often abnormally dense coverings; and third
that even under sound skin much lymphoid tissue m
be found that can be, and must be removed, so th
what may appear at first an insufficiently extensi
flap, when denuded of its lymphoid and diseas
tissue, will be found to provide, when sutured, a m
capacious receptacle than was anticipated.

The next step is the raising of the horseshoe flap wi
its contained penis. Sometimes the organ will
found just beneath the flap, at others it must be soug
for deep in the lymphoid tissue. The vertical limbs
the horseshoe should be deepened, and the ma
grasped in the left hand and lifted gradually as it
released by the touches of the knife held in the rig
hand—the left all the while feeling for and protecti
the penis. The latter being found, and the gla
identified and protected by touch, at a distance abo
one inch distal to the glans a complete transver
incision is made through the flap, and the portion th
cut off is discarded. The glans can now be expose
and will be found with about 1½ in. of prepuce to
in a very dirty condition. It is wrapped in gauz
expressed, and thoroughly cleaned with dabs soak
in tinct. iodi., which, of course, are not used agai
It will now be found that about 4 in. of the horsesh
flap remain; this is denuded of all lymphoid tissue (
not denude it of its blood-supply as well) and then, wi
the penis, it is wrapped in gauze and thrown back
to the abdomen out of the way. We now search f
the testicles and cords. These are easily found, a
being dissected out free from the lymphoid tiss
surrounding them, and the gubernacula binding the
down to the scrotum, they are in their turn protect
with gauze and thrown up on to the abdomen. The
will usually be hydroceles on both sides. These a
opened and tapped in the usual way. If large, t
redundant tissue of the tunicæ vaginales is cut aw
and the edges sewn; if small, the tunicæ vaginales a
slit up, turned inside out and sutured with catg
behind the testicles.

It is now that the large mass may be cut away a
removed, after which a critical survey of the skin a
flaps left behind takes place. The latter are cleane
and freed from diseased tissue as far as possible. T
butterfly nuts of the clamp are gradually release
and bleeding points picked up; it is remarkable ho
few of these will need attention; with even the mo
massive tumours not more than seven or eight vesse
may require a catgut ligature, indeed, I have had cas
of weight in which not a single ligature was use
torsion of the few bleeding vessels presenting being a
that was necessary. The clamp being fully opened
removed. The silkworm-gut sutures are inserted

s well to begin at the most dependent portion of the otum, taking the median raphé as it leaves the rineum as the guide, and to continue to suture in at line until a pocket of sufficient size to hold the sticles and cords has been prepared. The penis and rseshoe flap are next sewn, the flap being wrapped ound the penis and sutured in the line of the absent phé ; the cut edge of the prepuce being sutured to the t edge of the skin now enveloping the penis after the anner of the ordinary circumcision. A few sutures d perhaps a little trimming are now required to close e flaps at the base of the penis and the upper portion the scrotum. After a big case, or if much lymphoid sue has unavoidably been left behind, it is sometimes advisable to leave a drainage-tube at the most pendent part for a couple of days. Oozing of thin ood-stained fluid may be expected after such cases, t it seldom lasts more than two days.

The patient can be got out of bed and encouraged walk a few steps after two or three days. Retention unknown. The operation is well borne, even by old anæmic subjects. It is most satisfactory to the tient ; I have not seen a recurrence ; and potency the rule afterwards so far as I have been able to certain. The mortality is nil.

Clinical and Laboratory Notes.

A CASE OF ALBUMINURIA OF PREGNANCY.

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In view of the recent correspondence on this subject blished in The Lancet, it may be of some interest record observations on a case which has lately come der our notice.

A primipara, aged 23, first presented herself for examina- n at the ante-natal clinic, Guy's Hospital, on Oct. 26th. r last menstrual period terminated on March 31st ; the ght of the fundus confirmed this date. The fœtal head s freely movable above the pelvic brim (cephalic presenta- n) ; the position was left occipito-anterior. She com- ined of "morning sickness," but to this we attached no portance in the present connexion. On examination the ne was found to contain a considerable amount of protein, t no quantitative estimation was made at this time. r systolic blood pressure was 120 mm. ; she had no lema, and no abnormal symptoms other than the sickness. From Oct. 30th to Nov. 1st she was kept in bed on an linary diet. During this period no protein was found in e urine. On leaving her bed albuminuria subsequently appeared, and on Nov. 10th ureteric catheterisation was rformed at 11.30 A.M., after she had been up and about for o or three hours. The urine from the left kidney was more eply pigmented than that from the right ; the quantities tained over a corresponding period were 8 c.cm. (right) d 6·5 c.cm. (left). The protein content, estimated by ecipitation with trichloracetic acid in parallel samples of ne from either kidney and under similar conditions, was : *ht, 1·2 per 1000 ; left, 14·0 per 1000.* A few hyaline sts were found in the urine from the left kidney ; no pus ls or micro-organisms were found in either case.

On Nov. 16th and 17th an examination was made of urine ich had been passed on rising, and after she had been up two hours.

0 1.	Nov. 16th.	10.30 A.M.	8.30 A.M.	Nov. 17th.	10.30 A.M.
12 ..	Spec. grav. ..	1010	1014 ..	Spec. grav. ..	1015
0 ..	pH ..	6·6	6·2 ..	pH ..	6·4
3 ..	Protein ..	*1·8*	*0·5* ..	Protein ..	*2·0*

All these specimens contained a very few hyaline and anular casts ; no other abnormal constituent was found.

At 11 A.M. on the 17th blood was withdrawn from a vein l estimations were made of the bicarbonate and inorganic osphate content of the plasma. The bicarbonate was determined by the method of Van Slyke, Stillman, and Cullen.[1] A value of 0·0262 was found ; this is expressed as molar concentration of $NaHCO_3$ and may be compared with the average value of 0·0268 obtained by Cook and Osman[2] in cases of normal pregnancy. The phosphate content was determined by Briggs's modification of the Bell-Doisy method [3]; a value of 3·5 mg. phosphorus per 100 c.cm. was found, which is well within the normal range indicated by de Wesselow.[4] So far as these factors are concerned there was, therefore, no evidence of further renal defect.

Although it is very unusual for a pronounced albuminuria of pregnancy to disappear completely during a short period of rest in bed, these data in general correspond with observations which we have made in certain other cases. At the same time we do not wish at present to draw any definite conclusions, and would merely indicate an apparently promising line of research which we consider to be based on reasonable premises.

DEATH FOLLOWING INJECTION OF DIPHTHERIA ANTITOXIN

AND DUE TO STATUS LYMPHATICUS.

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The number of cases recorded of sudden death following injection of diphtheria antitoxin is so small that the following case seems of interest.

A boy, aged 10, was admitted to Plaistow Hospital at 11 P.M. on August 26th suffering from a severe attack of diphtheria. According to his history, he was in the third day of the illness, which had commenced with the usual symptoms of headache, malaise, sore-throat, and vomiting. His tonsils were greatly enlarged, almost meeting in the mid-line, and were covered with thick adherent membrane which extended to the base of the uvula and on to the post-pharyngeal wall. There was slight discharge from the nose. The glands at the angles of the jaw were hard and swollen. The heart sounds were weakened, but examination showed no other impairment. The throat culture gave a positive result to diphtheria. In a later history, obtained from the parents, it was stated that the patient had always been a delicate, nervous child but had never suffered from any serious illness. He always had a slight persistent nasal discharge but no other respiratory disturbance. They also stated that he always appeared to have some difficulty in swallowing.

Effect of Injection.—At 11.25 P.M. 18,000 units of antitoxin were injected by direct puncture into the right median basilic vein and 10,000 units were given intramuscularly into the right thigh. The patient's condition remained unchanged until 12.25 A.M., when the usual reaction following an intravenous injection of serum began to develop. He started to shiver, and the shivering soon developed into a well-marked rigor. His colour was blanched, the pulse small and rapid ; the temperature rose to 107·4° F., and he vomited once. During the rigor warmth was applied by means of additional blankets and hot-water bottles, the foot of the bed was raised, and stimulants and oxygen inhalation were administered. After 20 minutes the rigor subsided and his colour and pulse improved. He asked for a drink of water and wanted to sit up. His recovery from the reaction seemed quite satisfactory and he fell off to sleep.

Shortly after 1 A.M., however, the ward nurse was attracted by his stertorous and irregular breathing, and reported the condition. When examined he was found to be in a state of coma. The pupils were widely dilated and reacted only slightly to light. The breathing was stertorous, rapid, and irregular. Cyanosis was marked and the pulse could not be felt at the wrist. The heart was beating regularly but the sounds were weak. The temperature rose to 108·2° ; a tepid sponge reduced it to 103·6°. After about 15 minutes the breathing became quieter, the colour and pulse improved, and the patient moved his limbs but did not regain consciousness. Within a short interval another paroxysm of dyspnœa came on, lasting about 10 minutes, and from this time these paroxysms recurred at intervals of about 20 minutes. The patient vomited several times and fæces were passed in bed. No sign of a serum rash was discovered on any part of his body.

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[1] Van Slyke, D. D., Stillman, E., and Cullen, G. E.: Jour. Biol. Chem., xxxviii., 167, 1919.

[2] Cook, F., and Osman, A. A.: Guy's Hospital Reports, lxxiii., 233, 1923.

[3] Briggs, A. P.: Jour. Biol. Chem., liii., 13, 1922.

[4] De Wesselow, O. L. V.: Quarterly Journal of Medicine, July, 1923.

Oxygen inhalation was given continuously and doses of adrenalin, camphor, and atropine were injected. A nasal feed containing sod. bicarb. was given at 3 A.M. and retained. The patient, however, showed little or no response to treatment and his condition steadily became worse. At 4 A.M. he had a slight tonic spasm and from this time convulsions became frequent and increasingly severe. He died in a convulsion at 5.15 A.M.

Post-mortem Findings.—The body was poorly nourished, subcutaneous fat being small in amount There was a small curvature of the thoracic vertebræ to the left but no caries of the spine was present. When the chest cavity was opened the thymus gland was found enlarged and extending down over the pericardium. It was swollen and soft in consistence and weighed 35 g. The lymph glands of the tracheo-bronchial region were enlarged and were found in clusters about the size of small cherries. The mesenteric glands were even larger and more numerous. The superficial glands of the body were not hypertrophied. The lymphoid nodules at the base of the tongue were much enlarged. Peyer's patches were prominent and congested. The solitary lymph follicles of the small and large intestines were prominent and the mucous membrane of the cæcum and ascending colon showed marked congestion. The spleen was enlarged, weighing 170 g., and on section the Malpighian bodies stood out prominently. The heart was small, weighing 130 g. Its musculature was flabby and the right ventricle was dilated. No myocarditis was evident to the naked eye. The aorta was relatively narrow and thin-walled. The thyroid and suprarenal glands were normal in size and showed nothing unusual on section. The lungs were normal.

This patient received on admission the usual treatment for severe diphtheria. The reaction following the intravenous injection was very severe, but showed no unusual or alarming features; its course was similar to that observed by us in over a hundred other cases which had received intravenous serum during the past two years. When the patient became comatose the symptoms suggested a state of anaphylaxis, but after post-mortem examination we were satisfied that death was due to the condition of status lymphaticus

AN UNCOMMON CASE OF TYPHOID FEVER.

By ROBERT SWYER, M.R.C.S. ENG., D.P.H.,

SENIOR ASSISTANT MEDICAL OFFICER, NORTH-WESTERN HOSPITAL, LONDON.

THE following are the details of a case of typhoid of an unusual type.

The patient, a nurse at a fever hospital, was 23 years of age. Her illness commenced on Feb. 6th, 1923, with headache and sore-throat. She reported sick on the 8th with a temperature of 102·5° F., pulse 112, respiration 24. Tongue lightly furred; fauces, heart, lungs, and abdomen appeared quite normal on examination. During the night she had a rigor, and on the 9th complained of severe pain in back of head. The condition remained the same until the 12th, when the patient vomited twice, the attacks being quite sudden and not preceded by nausea. At this time it was noted that the right pupil was smaller than the left, but both reacted to light and accommodation, and there was no alteration in vision, the condition disappearing after a few days. Knee-jerks and plantar reflexes were normal and Kernig's sign absent. On the 13th 5 c.cm. of blood was taken and cultures made, resulting in the discovery of the presence of *B. typhosus*. Temperature dropped to normal on the 14th and remained down except for a rise to 100° on the evening of the 16th and to 99·4° on the 28th.

The pain in the occipital region, which was the only symptom complained of during the whole illness, continued until the 16th, when it finally disappeared. A second sample of blood was taken on the 22nd; the serum agglutinated a stock culture of *B. typhosus* up to a dilution of 1 in 160 and the bacillus previously isolated from the patient's own blood up to 1 in 80. *B. typhosus* was also recovered from the fæces on the 23rd. At no time was the rash of typhoid fever present. The spleen was not enlarged and there were no intestinal symptoms.

The only time the patient had been in contact with typhoid fever during the six weeks previous to her illness was on the night of Feb. 4th, two days before the onset of symptoms. She made a complete recovery and was discharged on March 6th.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

WAR SECTION.

A MEETING of this section was held on Nov. 12th with Air Commodore DAVID MUNRO, the Presiden in the chair.

Major A. T. FROST read a paper on the

Present-day Trend of Treatment of Gonorrhœa, with Special Reference to Cataphoretic Application of Colloidal Silver.

He said that since the discovery of the gonococcu many applications to the urethral mucosa had bee used in the hope of killing the organisms. Late when it was realised that no application could reac organisms buried in crypts, closed follicles, or beneat the surface epithelium, the routine procedure becam lavage with weak antiseptics and, more recently, th use of a number of metal instruments, some of whic were still of value in diagnosis or for destroying th local foci of disease which delayed cure. At th beginning of the present year the staff of the Militar Hospital, Rochester-row, decided to try two fres methods of attack on the gonococcus, (1) by the us of high antiseptics through the blood stream, an (2) by driving antiseptics into the deeper foci beneat the surface epithelium. The antiseptic employed i the first method was acriflavine (first employed b Lieut.-Colonel T. E. Harty at Dublin in 1921 0·2 g. of which was administered intravenously i 200 c.cm. of normal saline solution. On the fifth an tenth days 0·3 g. of acriflavine in 300 c.cm. of salin was similarly administered. During the course th urine was kept alkaline. In a small series of cas treated thus at the Royal Herbert Hospital, Woolwic in 1922, the average stay in hospital was rough 60 days. As, however, the skin became yellow a soon as the drug entered the veins, and the drug wa very rapidly eliminated, hypodermic and intramuscula injections were tried. These were, at first, no successful owing to the bulk of the injections an their acidity, which caused a local inflammator reaction. After further experiments on rabbits it wa found possible to make a more concentrated neutra solution (by adding 3·5 c.cm. of normal sodiu bicarbonate solution to 1 g. of acriflavine an diluting to 20 c.cm. with distilled water), 2 to 7 c.cm of which could be administered hypodermicall without causing great pain. Three doses were give at five-day intervals. This form of treatment, whic was still under trial, was found to give very encourag ing results, especially in chronic gonorrhœa—on case had apparently been cured and remained fre from recurrence for six months, by three injection after having resisted other forms of treatment for th same period. The neutral solution employed mus be freshly prepared every three days. Other dye might be discovered, but acriflavine was the best a a bactericide of those which had been tried up to th present.

Electrical Methods Using Colloidal Silver.

The production by Major S. H. Long of a pur silver colloid, stable in distilled water, provided th starting point of an electrical method of treatment The method first used was after the manner o ionisation, employing a silver catheter filled wit colloid in the urethra attached to the positive pole this method was abandoned owing to the pain and dis comfort caused by the catheter in the acutely inflame urethra. It was then decided to try the effect o using the colloidal silver cataphoretically—that is applying electric pressure and not electric curren through a column of colloidal silver within the urethra Electro-chemically the silver colloid consisted o electro-negative particles which actually moved (a could be observed under the microscope) throug the medium towards the positive pole when subjecte to an electrical pressure of not less than 60 volts. Cataphoresis aimed at driving these colloid particles nto the urethral mucosa by electrical pressure, since the colloid was a non-conductor of electricity. The technique employed in practice consisted of cleansing the patient's urethra and bladder and then filling them with colloid silver by means of an ordinary irrigation apparatus embodying a short ength of silver tubing in contact with the column of colloid. To this silver tube was attached the negative pole of a 106-volt direct current supply. The positive pole was attached to a wire gauze frame covered by washed lint moistened with saline, so shaped that when the patient sat upon it a prolongation grasped the shaft of the penis. With the voltage at zero, or "weak" on the sliding potentiometer resistance of the switchboard, the voltage is gradually ncreased until a pressure of 100 volts is registered, and less than one milliampère of current. It is hoped o control current by a "wireless" valve in circuit and prevent burns by an accidental short-circuit. The current was allowed to pass thus for 45 minutes on each of four successive days, and mmediately before the treatment was begun a ose of 20 million gonococcal vaccine was administered hypodermically. If, after four days, the rethra was free from discharge, the usual tests for ure were applied and the patient evacuated from ospital if he passed these satisfactorily. If discharge ersisted a second dose of vaccine was given and a Kohlmann's dilator passed to open up closed follicles; fter this cure could generally be obtained by one r two further "cataphoretic" treatments. The tests f cure consisted of irrigating the urethra twice a ay on two successive days with a 1 in 500 solution of magnesium chloride preceded by the injection of 00 or 200 million gonococcal vaccine and followed by he passage of a sound, urethroscopic examination, nd the examination of the urine and of prostatic nd vesicular secretion expressed by massage. The rine and secretions must be free from pus. As this reatment could deal only with a urethral infection, ases in which preliminary examination revealed isease in the prostate gland or vesicles received reatment with neutral acriflavine in addition to ataphoresis.

Major Frost then quoted the results obtained in 7 cases. On the average these cases received days' electrical treatment and were in hospital days, whereas the average stay in two venereal ospitals during 1922 was 69 days. This method of tack upon gonorrhœa was therefore very promising, nd work now in progress to discover the most fective voltage was expected further to improve he results. Other types of colloids are being vestigated.

Discussion.

Lieut.-Colonel P. H. Henderson was much mpressed by the results. Was the treatment as pplicable to women as to men?

Colonel Crawford Kennedy inquired what ze colloid particles were the most efficient, and hether relapse was frequent or the incidence of pididymitis increased by the cataphoretic treatment.

Squadron-Leader F. N. Smart had tried ionic eatment for nine months, using soluble salts of silver, pper, and other metals, but had not been impressed y the results. He inquired whether Major Frost's od results were not due to the acriflavine rather an the electrical treatment.

Lieut.-General Sir William Leishman pointed t that the electrical method employed by Major ost lent itself admirably to micro-experimental ork, using the colloid and a culture of gonococcus vitro, and observing the effect of electrical pressure d the consequent movement of the colloid particles on the organisms. Other colloids might be tried order to discover the most potent.

Lieut.-Colonel L. W. Harrison had felt that since e discovery of salvarsan the battle against syphilis as being won, but no such advance had been made the treatment of gonorrhœa. Major Frost's results were therefore all the more encouraging. Without wishing to detract from Major Frost's dramatic cure of chronic gonorrhœa with one injection of acriflavine, he yet could remember a similar cure of a chronic case by the mere passage of the urethroscope which had, he presumed, opened up a previously closed follicle. Were not the results of the colloid silver treatment in part due to the mere contact of the colloid with the urethra for 45 minutes a day? Local applications were of little value unless some means were employed of raising the bodily resistance, and of these a vaccine was the most effective. He noticed that Major Frost used only one dose of vaccine and inquired why this was not repeated.

Reply.

In reply, Major Frost said that there were no anatomical difficulties in applying the electrical method to women. The size of the colloid particles was of the order of 20 micro-microns and permitted them to pass through an "F" filter. The solution was concentrated by boiling. The killing of organisms might be ascribed to the bombardment by the colloid particles, and differed entirely from ionic medication. The particles are assumed to go deeper when subjected to electrical pressure, and the good results were not obtained in control cases which merely had the urethra filled with colloid without the current being turned on. Little microscopic work had been done, but other colloids were being experimented with. He used vaccines in order to increase the bodily resistance, and to open up closed follicles and thus render them more vulnerable to treatment.

The President congratulated Major Frost upon his paper and the results he had obtained. In the study of venereal diseases the medical officer in the Services, whose patients were a "controlled population," was able to work at an advantage when compared with civil practitioners, who consequently looked to the Services for advances in treatment.

SECTION OF OPHTHALMOLOGY.

Exhibition of Cases and Specimens.

A meeting of this section was held on Nov. 9th under the presidency of Mr. A. L. Whitehead.

Pseudo-Retinitis Pigmentosa.

Mr. H. M. Joseph showed a woman, aged 63, who had some of the signs of retinitis pigmentosa but none of the symptoms. There was the characteristic pigmentation, and in places there were choroidal changes. The fields showed an annular scotoma. The visual acuity in each eye, corrected, was 6/9. Night blindness was not present, and there was no associated condition in any other members of the family.—Mr. Montague Hine showed an example of a similar condition in a man who seemed to have monocular retinitis pigmentosa. The left fundus had been passed at the Pensions Department as normal; the field of that eye was quite full, and in the periphery of the field there was no ring scotoma. In the right eye the field was contracted to the 5 degree circle; his vision was 6/60 and 6/36. The man had an injury over the frontal sinus in 1918, and the exhibitor asked as to the possibility of such a condition resulting from an injury.—Mr. Cyril Walker spoke of cases collected by Mr. Jonathan Hutchinson, in which the condition, or a similar one, seemed to be a late sequel of injury.—Mr. Gray Clegg did not regard Mr. Joseph's case as one of retinitis pigmentosa, and did not think Mr. Hine's case was likely to have been due to injury.—The President said the irregular migration of pigment was very common in direct injuries to the eye; also following "windage"—i.e., when a shell exploded near, without any direct material impact. But he had never seen any appearance corresponding to that in Mr. Hine's case.—Mr. Affleck Greeves suggested that a condition as that of Mr. Hine's patient might be produced by an injury affecting the posterior arteries.—Mr. M. H. Whiting remarked on the difference of this case from those which showed concussion changes in the retina. He knew of no one who had seen damage done to the retina by windage. Mr. Hine's patient, in his opinion, showed a condition indistinguishable from retinitis pigmentosa.

Tuberculous Conjunctivitis.

Mr. P. G. Doyne showed a child with this condition, who came to hospital with a suppurating pre-auricular gland, which was opened. No other lesion had been found. A scraping of the lower lid showed no tubercle.—Mr. J. B. Lawford regarded the clinical appearances as very suggestive of tubercle, and advocated the X ray examination of the intrathoracic glands.—The President said that in some cases of tuberculous choroiditis and diseases of the conjunctiva, probably the primary cause was in the thoracic or the mesenteric glands, when no disease was obvious in cervical or other glands.

Mr. Basil Lang recalled Calmette's view that tubercle was acquired before the fifth year of life, remaining dormant in thoracic or abdominal glands until at some subsequent date malnutrition or disease brought it again into activity.

Dr. J. A. Valentine showed and described a pair of diving spectacles, and Mr. Rayner Batten explained the mechanism of the hydrophthalmoscope, which measured the normal vision under water without the aid of diving glasses.

The Treatment of Interstitial Keratitis.

Mr. Lindsay Rea submitted a preliminary report on this subject. He commented on the widely differing views on the matter held in the profession. He now submitted conclusions which he had arrived at from a careful observation and study of 91 cases, without regarding anyone else's notes on them. Very few workers on this subject had given the vision of the eyes after their courses of treatment. He had done this in his own series. The fellow eye could be found to be affected after even so long an interval as ten years after the first eye was involved. In his series there were three males to every female. Only two of his cases were over 26 years of age. The temporary teeth of these patients did not show any peculiarity. He had had a large number of children under 6 years of age who had not yet erupted their permanent teeth, and in them he had never yet seen healthy temporary incisors, some were carious, and even the gums were unhealthy. Many of the children were deaf. Congenital syphilitic deafness was labyrinthine, and several authorities regarded it as a hopeless form, as the lining of the canals was thickened, and the vessels were affected by obliterative endarteritis. Porter said that deafness often came on immediately after the onset of the keratitis, or else as it was subsiding. Any treatment which promised to help these patients was well worthy of consideration. Some thought that interstitial keratitis was the last manifestation of syphilis. He quoted a series of cases in which thorough treatment with N.A.B. cleared away syphilitic ulcerations completely, and others in which the eye condition was much improved by the same compound. By persevering with the treatment he had secured good results in the most unpromising cases. His practice was to follow up the N.A.B. with mercury.

Mr. Humphrey Neame said it was not common for syphilis to manifest itself after interstitial keratitis had cleared up. Of 39 cases on which he reported in 1921, 30 gave a positive Wassermann reaction. He did not agree that the majority of old cases of interstitial keratitis gave a negative W.R. In some cases there was a large phlyctenule at the limbus ; in others there was a deep folding of Descemet's membrane, probably due to œdema of the substantia propria. In one case the onset of the interstitial keratitis occurred two or three weeks after a blow which caused a black eye, and a few weeks later still the other eye was involved. Sometimes an operation, as that for cataract extraction, started an attack, although the healing from the operation had been complete.—Mr. Harrison Butler said the onset of interstitial keratitis after operation was not so frequent as he at one time supposed.—Dr. C. Worste Drought did not agree that interstitial keratit was necessarily the last manifestation of syphili In a case, aged 23, which had the eye conditio examined two years ago, the patient was no suffering from tabes dorsalis, of congenital origi In congenital syphilitics the blood Wassermann wa often negative, but they were very liable to show th colloidal gold curve of the luetic type. The latter wa a very valuable indication, as it might be the only or in tabes.—Mr. C. B. Goulden said the results treating interstitial keratitis with atropine were usuall so good that it was difficult to say, in a particular cas whether general treatment brought about improv ment in the eye condition, though admittedly benefited the general condition of the patient. O case of advanced congenital syphilis had choroiditi W.R. was positive, and extensive treatment b N.A.B., followed by mercury, was given. Subs quently the patient developed interstitial keratitis. The President said that for some years past he ha had all his cases of interstitial keratitis treated b galyl or similar preparations, and he was sure th present results were better than the former one He was sure cases were now seen earlier, and tha probably had much to do with the better results. was important to instil atropine, to prevent th formation of iritic adhesions, and to do all possib to raise the general health of the child ; he was in th habit of giving iodide of iron and other tonics. Mr. Rea replied.

HARVEIAN SOCIETY.

A meeting of this Society was held at the Tow Hall, Paddington, W., on Nov. 15th, Sir Cri English in the chair.

Sir John Collie opened a discussion on

Pitfalls of Medico-Legal Practice.

Many doctors, he said, were seldom called upon give evidence, and most of them disliked the expe ence, but there were means of making the latter little formidable as possible. He proposed to give few hints on the examination of medico-legal case It must be remembered that mistakes would n condemn a doctor, but the latter's conduct afterwar might easily do so. Mistakes should be admitted in any case they would be found out, and it was we to do the thing handsomely. The bedside mann should be dispensed with in the examination medico-legal cases, which should be a strictly busine transaction. The medical man should never prophe unless he knew. Judgment, skill, foresight, and eve experience were beads unstrung unless combine with infinite tact. In these cases the right pla for an examination was the consulting-room, whe the mental effect on the examinee was enormou A solicitor's office was the last place in which examine a case, and the Court of Appeal had decide that a solicitor was not entitled to insist on a doctor appearance there. Garrulous patients should encouraged, but it should be remembered that the were generally inaccurate. Taciturnity was a val able asset. It should not be forgotten that som women do not always do the exact opposite of wh was expected of them. Some resented every questio and some displayed very even tempers, because the were cross the whole time. Others would chatt about everything but the real question at issue.

Value of Painstaking Investigation.

To illustrate the value of thorough examinatio he quoted a case in which a clerk claimed to hav suffered concussion of the brain, when on duty, owin to the slipping of a mat which caused him to fa on a concrete floor. The patient was obviously i but there was no evidence of fracture. He (th speaker) was pressed by the medical attendant attribute the injury to the accident, but he thoug the patient had first become unconscious, and the fallen. He reported the case as not due to an accide ı duty. Six months afterwards the patient had ıother attack of unconsciousness, with no fall. he diagnosis was thrombosis of a vessel near one the visual lobes. The patient recovered and as taken into the army, but later he had vo fits of unconsciousness within ten days. oma set in and he died. At the post-mortem camination in France it was revealed that one teral sinus stopped short of the torcular Herophili, ıe dura mater being adherent to the brain, with no vidence of the supposed fracture. In another case e was asked to examine a woman who had a needle ı her hand, lying between the metacarpal bones, nd giving no trouble. He shook hands with the atient, and got a firm reciprocal and evidently ainless grasp, indicating recovery. The case went) court, and after long consideration the judge gave decision against the claim for disability to the and. Within a fortnight of the decision she was lmitted into a hospital for a huge open sore—ıalignant disease of the breast, which had gone ndetected on account of the omission to examine ıore than the hand. Nothing, then, should be taken r granted; more mistakes were made through ssuming things than through ignorance. For stance, a doctor told him he was asked to examine man who had let his insurance policy drop, and ished to be re-certified as in good health. He ripped and was apparently healthy in all respects. hree months later the doctor who examined him as asked by the insurance company why he had ıssed as a first-class life a man with malignant sease of the rectum, and who at the time of the camination had a colotomy opening. The examinee ıd covered with his hand an artificial anus in his odomen when being examined!

The Influence of Emotion.

The course of moral progress was spiral rather ıan straight. Motives were governed not by reason intellect, but by instinct, passion, sentiment, or notion, and we rarely knew of the existence of the eepest of these. The medical man should not tell ıe patient his opinion, but should reserve it for the licitor. Insurance companies were not interested or ıpressed by technical terms. Above all, the medical an should take notes at the time of the examination ıd preserve them. He was frequently challenged on ıis head. Even notes dictated and typewritten ımediately afterwards were sometimes disallowed. ı difficult cases the writing of the report should be ostponed for 24 hours, since perspective sometimes tered the view of the case. A medical man should ever be ashamed of changing his mind, but he ıould not change it after sending in his report. 'omen's instinct in the judgment of character was lmittedly marvellous; but intuitions were useless ı a court of law. It was useless to say that a man as a malingerer unless one had incontrovertible vidence of the fact. Moral victories counted for othing. In writing a report the emotion of mpathy should not be allowed to exercise any fluence. A statement of claim was usually made ıder the influence of deep emotion.

The Law of Libel.

All men were afraid of the law of libel, but if a octor were to do his duty he must express himself lly and fairly. Certain spoken and written words ere absolutely privileged—the words of judge and tness, the proof of evidence, and the medical report. ıe statement that a person was untruthful, fraudunt, or a malingerer was not libellous, if made in the ght place and honestly. He believed that anything ight be written by hand in England, but if even ctated to a secretary it became public and libellous. ı Scotland it was illegal to write the same statements, owever privately. Of county court practice, he und it difficult to speak with moderation. One arned to get used to it, and tried to enjoy it. The edical man in the witness-box must never get angry. ounsel was sometimes intentionally provoking, but ıe answers should be courteously given. If the doctor believed the case to be one of malingering, he should simply say that he had thoroughly examined the claimant, that the latter complained of many things, and that of those things there were no physical signs—and should leave it at that. The irresolution with regard to recommencement of work, which many patients displayed, should be emphasised.

Functional Nerve Disease and Trauma.

Erichsen's spinal concussion was a psychical condition. In organic disease of the spine, nature's warning was pain, which was followed by rigidity. If rigidity was absent, pain was improbable. Pain in the back was usually largely psychic, the alleged incapacity depending on an exaggerated idea of injury. Nine-tenths of subjective symptoms were the result of auto-suggestion. The art of medico-legal practice lay in determining how much was due to the neurotic outlook. Neurasthenics were facile, and their thoughts ran along the line of least resistance. Heart-to-heart talks helped, teaching the patient to take an optimistic inventory of his own mental qualities. The attitude of the artisan out of work for long periods was an interesting psychological study. The man lost the work habit; the earliest possible return to work was the best course. Immediate counter-suggestion applied at the right moment and frequently repeated was necessary. One overpowering idea excluded another—e.g., engaged couples were not pre-eminent for judgment; obsession had nothing to do with reason or logic. The medical man should not forget that his influence with the neurasthenic dwindled from the first time of seeing him. Suggestion, however, could not be practised as a duty; it required enthusiasm, which would succeed where other means had failed.

The Malingerer.

The erroneous evidence sometimes given by medical men was due to defective observation and memory, or to a lively imagination. One should never be in a hurry to diagnose a malingerer, and the latter's friends should be examined separately. To paraphrase well-known words, "better doubt all, and be deceived."

Discussion.

Mr. TRAVERS HUMPHREYS considered it very fortunate that members of the legal profession had been taught by Sir William Willcox to treat medical witnesses in the box not as partisans, but as experts. He had had little experience of county courts, but himself disliked them. He was prepared to accept the suggestion that about nine-tenths of the cases referred to by Sir John Collie were frauds. Cases in which he had heard medical men give evidence were chiefly criminal cases; there he had been delighted to observe that medical men were the only experts who could be entirely trusted to give truthful evidence. He confessed that lawyers were grateful to those members of the medical profession who practised as witnesses for their impartial evidence. The mistakes made by members of the Bar with regard to medical evidence were many. He hoped the day was far off when medical witnesses would come to be regarded as there to win or lose a case. He could understand the difficulties of medico-legal practice, and agreed that doctors should take careful notes at the time of examination. His own experience was that when medical men were held up to ridicule, it was on account of some little carelessness.

Sir WILLIAM WILLCOX said that his experience of medico-legal work was chiefly confined to the criminal courts. In the many cases, some of them hotly contested, in which he had given evidence, he had had every consideration from members of the Bar and from the whole court. As a medical witness he felt it important to encourage the feeling of mutual respect between the professions. There was pleasure in going into the witness-box to speak the truth with no feeling of anything pulling one way or the other, but he confessed to sometimes entertaining a hope that the accused would get off. The feeling of the far-reaching effects of statements made in the box caused one to be very cautious. He disliked cases where the defendant was not represented by counsel, or when counsel had not had time to get the case up properly. He welcomed a very thorough cross-examination in criminal cases. He had been struck by the remarkable facility with which members of the Bar picked up the medical points of a case, and recalled several instances of this facility, though confessing that he did not know how long the knowledge thus digested remained in the system.

Mr. **Ernest Clarke**, speaking from the point of view of an ophthalmic witness, urged the importance of speaking the truth and refraining from abuse of the other side. He told how in a claim against the London Omnibus Company he held that a claimant who had been knocked off his bicycle and found himself to be blind in one eye had always been thus blind without knowing it. By a coincidence, the judge, who admitted this view and gave judgment accordingly, had himself been blind in one eye for many years without having discovered it.

Mr. T. **Simpson Pedler** spoke sympathetically, from the lawyer's point of view, of the difficulty which arose for doctors in the delays encountered at the courts.

Mr. H. **Tanner** referred to a resolution passed many years ago by the British Medical Association advising that in cases where medical evidence was called on both sides, medical witnesses should meet and talk the case over beforehand. In compensation cases, he added, doctors sometimes found that they had difficulty in getting their fees. One colleague had told him that he had received no fees for the last five cases in which he had given evidence.

Sir **James Dundas-Grant** emphasised the importance of not "trying to be clever" in the witness-box, and spoke of the difficulties of certification of the insane and of the advantage of training in mental disease for students.

Other members also took part in the discussion.

Reply.

Sir **John Collie**, replying, expressed himself as much gratified by the discussion. He held to his contention that the class of evidence and advocacy in the county courts was exasperating, and much inferior to that of the High Court. Cases of gross exaggeration were trumped up, and it was the medical man's duty to hold firmly to his opinion. In his extensive experience of working men in medico-legal cases about 8 per cent. were distinctly malingerers. A talk between medical witnesses on opposite sides was always pooh-poohed by counsel. He spoke of the new Workmen's Compensation Bill shortly to receive Royal Assent, which would do away with much perjury in county courts. Either party would be able to claim that the case should go before a medical referee, whose finding would be absolute. As far as medical facts were concerned, many cases would thereby be prevented from coming into court. The medical referee would, however, have to make known not only his decision, but also his reasons for coming to it. He (the speaker) had obtained the insertion of a clause to this effect as the Bill was being considered in Committee.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A meeting was held at the Elizabeth Garrett Anderson Hospital on Nov. 13th, Dr. M. **Chadburn**, the President, being in the chair, when Dr. **Laura Veale** read a paper on

Spa Treatment at Harrogate.

She spoke of the stimulus given to hydrotherapy by the discovery of radium and the presence of radioactivity in water, and of the further impetus which was the outcome of the war. Hydrotherapy was now definitely established as a factor to be reckoned with in practical therapeutics. Dr. Veale discussed the special features of Harrogate as a spa—its geographical position on the highest table-land in England, its temperature, which was not so low as might be supposed, and its dry and sunny climate. Harrog
contained an exceptional number of mineral sprin
87 situated within a radius of two miles, and it
remarkable that each spring maintained an appro
mately constant composition while remaining che
cally and therapeutically distinct. She enumera
the composition and special value of the vari
springs, explaining which were suitable for inter
and which for external application, and deprecat
the habit of sending patients to a spa without c
fiding them to the care of a resident doctor. Mine
waters of any potency could not safely be taken
any time and in any quantity, and the results of
attempt on the part of the patient to treat him
often ended disastrously. As to diet, in Engl
spas the doctor had not the same advantages
on the continent of being able to superintend
patient's diet. The Harrogate Medical Society
again and again attempted to solve the proble
The difficulty was not so much with the hotel manag
or with the patients, as with the patients' frien
who refused to be content with simple diet. Patie
went to Harrogate suffering from many wid
different complaints, Harrogate being supplied w
springs containing both sulphur and iron water, a
equipped with facilities for all sorts of baths—sulph
peat, needle, heat, electric, paraffin wax, and whirlpo
among others—and also for special treatments, su
as the Ems system for throat and nose affectio
and the Plombières treatment for colitis.

Dr. M. E. H. **Morris** spoke of the

Waters of Bath.

She said that since Dr. Veale had dealt mai
with the clinical side of spa treatment she wo
refer briefly to the physical and physiological asp
of the subject. Important discoveries had been ma
in recent years as to the composition of the waters
Bath by the late Sir William Ramsay; and at t
present time research work was being carried on
the Mineral Water Hospital, which should result
increasing our knowledge of the physiological acti
of the waters. A municipal laboratory had also be
established in connexion with the Royal Unit
Hospital, where pathological specimens were examin
for the medical practitioners in Bath and the surroun
ing districts. The Bath water was always classified
a simple thermal water until 12 volumes of helium
10,000 volumes of the gases escaping from the Kin
Well were found by Lord Rayleigh. In 1903 Ramsa
working with Soddy, found that helium was one of t
products of the change of radium, and in the sa
year Strutt discovered radium in the Bath wate
Experimenters were unanimous in holding that t
effect of radio-activity was an increased activity
all the processes of nutrition and metabolism. The
was increased oxidation, as shown by a rise in t
percentage of all the urinary solids other than t
chlorides. Also, there was multiplication of the r
blood cells and increased activity of the digesti
ferments. The growth of bacteria was found to
retarded, if not inhibited, by radium emanatio
This was well shown at Bath by the marked succe
in the treatment of gonorrhœal arthritis. Also
was found that radium emanations stimulate t
elimination of toxins, as shown by increased toxici
of the sweat. An exacerbation of symptoms was
common incident of spa treatment, and if the reacti
was not severe it was usually welcomed as a sign
progress. Such reactions usually set in after a wee
or two of treatment, and were soon followed by
marked improvement. The conditions deriving mo
benefit from treatment at Bath were simple chron
arthritis, chronic muscular rheumatism, progressi
polyarthritis, infantile arthritis, and gonorrhœ
arthritis. Dr. Morris had had many patients sufferi
from subinvolution of the uterus and chronic pelvi
inflammatory conditions who had derived gre
benefit from the vaginal douches; while the Plon
bières irrigations of the large bowel had cured man
and relieved many other cases of colitis, constipatio
and post-operative adhesions. Treatment at Bat

contra-indicated for patients suffering from berculous conditions, also for those suffering from ntracted granular kidneys. The baths had been uch improved in the last ten years. Various different ads of bath had been installed, and an entirely new ectro- and physio-therapeutic department had been nstructed.

The PRESIDENT asked for details as to how ombières treatment was carried out at the spas.

In reply, Dr. VEALE said that Plombières treatment, applied at Harrogate, consisted of an injection of oz. of water at a temperature of 100° F., and at pressure of 2 ft. Copious lavage was not considered neficial.—Dr. MORRIS said that in Bath the Plombères treatment consisted of 20 to 40 oz. of water 100° F., applied while the patient lay on the left e. The patient then turned on to the back and right side, again to the left side, retaining the ection for a little while. Reports of the result re sent to the doctor by the attendant.

EST KENT MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Nov. 9th Dr. LDRED CARLILL gave an address on

Tabes Dorsalis,

m cases at the Miller Hospital, Greenwich. His narks were based on the case-notes of 153 personally erved patients and were illustrated by a large nber of photographs taken by him. The importe of examining the pupils of all patients was phasised and the conditions other than syphilis in ich the Argyll Robertson pupil might occur were ntioned. Dr. Carlill gave an account of the early nptoms exhibited by patients. After discussing clinical and pathological examination, Dr. Carlill ed that the condition might often be diagnosed or to abolition of tendon-jerks, and he pointed that, whereas the tests in serum and cerebronal fever were always positive at some period of disease, they became negative not only in conion with treatment in certain cases but also in cess of time. Thus, it was not always possible to ain pathological confirmation of a clinical diagnosis abes dorsalis, but it was always possible in general alysis. Examples were given of the association of es dorsalis with other syphilitic conditions such basal meningitis, focal vascular lesions, or gummata, also with non-syphilitic diseases such as teria, lead palsy, alcoholic insanity, and epidemic ephalitis.

CARDIFF MEDICAL SOCIETY.

T a meeting of this Society held on Nov. 13th W. PARRY MORGAN gave a demonstration of the ssermann reaction and a flocculation test for hilis. He showed how the antigen was prepared n the heart extract, and exhibited tubes showing culation occurring when this was added to hilitic serum. He then showed the parts played complement and hæmolytic serum in hæmolysis, how this hæmolysis is used in the Wassermann tion. Examples of serum giving strong positive, k positive, and negative reactions were shown.

r. J. BEATTY read a paper on

Psoriasis.

the disease was familiar he did not deal with symptoms and course. He emphasised the emely small size of the initial lesion, and the that the spots grew at different rates, and that spots might occur while others were fading. sionally the lesion occurred at the site of wounds, as superposed on other skin diseases where there breach of surface; it persisted indefinitely, rrence being the rule. The occurrence of iasis was related to ill-health, for the dictum that as a disease of the healthy applied to about one-third only of the cases; further, it was not contagious, though very rare cases of apparent infection had occurred. He described the microscopical anatomy, as first distinguished clearly by Munro and elaborated by Haslund, showing that the primary lesion was a cell infiltration into the rete and accumulation beneath the corneous layer—a microscopic abscess. Later parakeratosis, or retention of nuclei, occurred here and there in the corneous layer with collections of shrunken leucocytes; acanthosis, or proliferation of the rete cells, was abundant, while in the corium there was widening of the vessels and accumulation of leucocytes round them. The pathology of psoriasis was unknown, investigators attributing it variously to a parasite, to a fault of metabolism, to some disturbance of the nervous system, or to one of the great systemic infections, tuberculosis or syphilis. Schamberg and his collaborators attempted to find a parasite, using complement-fixation methods and culture media of all varieties with and without the patient's serum, extract of the scales, &c., but were unable to isolate anything beyond the ordinary skin bacteria. Dark-ground illumination showed what appeared to be a bacillus, but Ketron later brought evidence to prove that this was a fibrin form. Inoculations on animals were equally unsuccessful. They also investigated the metabolism in psoriasis, using the amounts of nitrogen ingested and excreted as an index, and were able to prove that nitrogen retention occurred, but Tidy later showed that this occurred also in exfoliative dermatitis. It was now believed that this retention was due only indirectly to the disease, and depended on the desquamation. While the evidence for a parasitic origin was negative, there were no features which seemed to point to any other hypothesis which could not be equally well explained if the existence of a parasite were assumed. The microscopical anatomy and the spread of the spots by peripheral extension were strongly in favour of this, but it was necessary to predicate a predisposition—a suitable soil. Treatment could have only a temporary effect. Special diets did not appear to have any value. Locally, after removal of the scales, the tars, mercurials, and the chrysarobin group (including pyrogallol and resorcin) were the applications most used. Mercurials were the least effective and crysarobin most. Any application should be rubbed in. Chrysarobin was not an antiseptic tested against staphylococci, its action being that of a reducing agent, but its special value compared with other reducing agents depended (1) on its stability so that it was at full strength when applied, (2) on its ready oxidation by proteins and their derivatives, and (3) on the fact that sodium chrysophanate or other product of oxidation was quite innocuous. Sunlight, the electric arc, and X rays were all useful in special cases. The internal treatment was marked by the variety of the drugs used and the uncertainty of their action. These fell into six groups: (1) The arsenic group (including antimony); (2) the heavy metal group, mercury and manganese; (3) the iodides and thyroid; (4) carbolic acid, tar, and the volatile oils; (5) alkalies and salicylates; (6) vaccines and auto- and hetero-serums. Arsenic was the most reliable and usually successful in first attacks; it should be pushed to tolerance. Hypodermically or intravenously enesol seemed best, salvarsan being generally unsuccessful. Mercury and manganese were given hypodermically. The iodides were the next drugs to use if arsenic failed, thyroid being held in reserve. Salicylates had been given in large doses intravenously and salicin by the mouth. Vaccines, usually staphylococci, but often other germs, might be effective. Discussing the action of these drugs, the speaker pointed out that no physical or chemical relation between them could be discovered, and that they had to be administered in full doses. He believed that a pharmacological relation existed in that they were all tissue poisons. Even sera fell under that category, since symptoms resembling anaphylactic poisoning could be produced by first treating sera with physical agents. He strongly advocated the view that the really active body was some product of protein metabolism, and stated he believed this was true also of the treatment of syphilis, where unrelated substances like arsenic, antimony, bismuth, mercury, and even iron might be effective. The ineffectiveness of arsenobenzol on spirochætes in vitro might be explained in this way. The treatment of both psoriasis and syphilis seemed really a chronic poisoning, and the cure only indirectly due to the drugs used.

Discussion.

Prof. A. W. Sheen suggested that perhaps the cutaneous phenomena of psoriasis might be regarded as the local manifestation of some general disease comparable to the skin eruptions which occurred in systemic diseases like tubercle and syphilis. He also drew attention to the fact that psoriasis occasionally follows the distribution of a cutaneous nerve.—Mr. H. G. Cook discussed the seasonal variations of psoriasis. The disease was liable to exacerbations in the spring and autumn, the reason for this being obscure.—Dr. R. Prichard thought that heredity played a definite rôle in some cases, and cited instances. He described the successful treatment of a case by means of arsenic.—Dr. Gordon Greaves suggested that psoriasis might perhaps be akin to conditions of anaphylaxis, such as asthma and hay fever.—Dr. C. W. Shepherd, discussing the condition of nitrogen hunger, asked whether it was due to the scaling or was a peculiarity of psoriasis.—Dr. H. A. Haig inquired whether cases had been treated by Finsen light and whether X ray treatment had any value.—Dr. Beatty replied.

NEWCASTLE-UPON-TYNE AND NORTHERN COUNTIES MEDICAL SOCIETY.

A meeting of this Society was held in the Royal Victoria Infirmary, Newcastle-on-Tyne, on Nov. 1st. Dr. R. Esmond Moyes, the President, was in the chair.

Dr. A. F. Bernard Shaw made a communication on the

Pathology of the Respiratory System in Influenza.

He referred to certain data regarding the disease which had emerged from historical study and observations made in the last pandemic. Certain of these data bore more or less directly on the remarkable series of changes found in the respiratory tract, and could be adduced as evidence of the possibility that influenza did not fall within the category of a bacterial disease. It had been shown that epidemics and pandemics of influenza had affected man since the fifteenth century and probably earlier. It had frequently been described as a "new disease." Its manifestations were extraordinarily protean. The phenomenal rapidity of spread was unlike a bacterial disease and, in spite of the enormous amount of work done recently, there was no definite proof of its bacterial origin. No one had succeeded in inoculating healthy men with the disease. Probably no other acute disease so greatly lowered the resistance of the body to infection by bacteria as influenza. In the fulminating cases of the disease there was an intense tracheo-bronchitis with an aplastic exudate diffused throughout both lungs, and necrosis of the epithelium at all levels of the bronchial tree. Later, localisation of the process occurred together with a leucocytic reaction. At this stage there might occur as complications acute bronchiectasis, abscess, and gangrene of the lung. In those cases which survived a few weeks there was found extensive organisation of the exudate leading to obliterative bronchiolitis, obliteration of alveoli, and eventually fibrosis of the lung and bronchiectasis. As a result of this marked tendency to organisation it could be said that there was no other acute pulmonary infection which led to such distortion of the lung and impairment of function as influenza. Attention was drawn to the
remarkable capacity for epithelial regeneratior
the bronchioles which followed influenza, and sc
times the appearances almost suggested a
growth. The only lesions comparable to influ
were those produced in the lungs of animals
jected to inhalation of certain gases. Lantern sl
were shown illustrating the histological appeara
of the lesions.

Mr. R. J. Willan read a paper on

Perinephric Abscess.

He said that he would not include perinep
abscesses secondary to a tuberculous vertebra o
an acute appendicitis. He had collected 43 case
perinephric abscess where the records were mor
less complete. The anatomy of the fascia ren
was discussed, and emphasis laid on the fact t
below, the two layers of this fascia do not blend,
lose themselves in the loose areolar tissue of the i
region, thus establishing a direct tract between
abdominal true pelvis and the perirenal area. Of
43 cases the majority—namely, 26—occurred betw
the ages of 21 and 30, and the condition was commo
in males than in females. Twenty-four were rig
sided abscess, while the suppuration occurred in
cases on the left side. In considering the result
his observations Mr. Willan went on to say: t
the disease is commoner on the right side
thought to be due to the fact that the right kidn
with its surrounding perinephric fat, is lower do
and is therefore more liable to injury. Someti
perinephric abscesses are due to outward extensior
renal cortical abscess or infarct. Nine cases out
the 43 followed urinary sepsis, 8 followed trau
6 as a sequel to parturition, 3 to pneumonia, 2
recent boils, 2 to enteric fever, 1 to sacculitis of
colon, 1 probably to gonorrhœa, while in 10 ca
there was no stated cause. In 8 of the series—
18·6 per cent.—there was a definite history of
injury. My impression is that sudden tears
ruptures of the perirenal fat occur more often t
is generally believed. *Staphylococcus pyogenes au*
is the commonest organism found, then streptococ
then *Bacillus coli communis;* rarer organisms fo
are *B. typhosus* and pneumococcus. There are t
forms, primary and secondary. The primary fo
may follow injury, though more frequently it devel
after an acute fever, tonsillitis, boils, &c. Second
forms follow suppuration in adjacent organs,
infection travelling by direct extension or via
lymphatics. A feature of the complaint is in so
cases the length of the incubation period. The on
is often insidious, and in the great majority of ca
the onset symptom is a dull ache in the upper p
of the ileocostal space—i.e., just beneath the last
and lateral to the erector spinæ muscle. Occasi
ally the onset is acute, and then an onset rigor
often met with. Except in the acute variety, rig
are not common. Usually there is irregular fe
which is often mistaken for typhoid. With rega
to urinary symptoms, in 12 cases there were neit
urinary symptoms nor pus in the urine; in 11 ca
there were urinary symptoms together with pus
the urine; in six cases there were urinary sympto
without pus; in one case there was pus without a
urinary symptoms. Frequency of micturition is t
common complaint made, though four cases in t
series had renal colic. The symptom of thigh flexi
is common in this disease, and is due to the pe
nephritic inflammation spreading to the pso
muscle. With regard to treatment, an explorato
needle should not be inserted unless preparatio
are complete for immediate operation. Ea
drainage of the abscess is essential.

LIVERPOOL MEDICAL INSTITUTION.

A pathological meeting of this Institution w
held on Nov. 8th, Dr. Hill Abram, the Presider
in the chair. After the exhibition and discussion
specimens, Dr. J. Johnstone, of the Fisheri

Laboratory at Liverpool University, gave a description of a number of cases of

Tumours Found in Marine Fishes,

mainly cod, skates and rays, turbot and halibut. A few of these tumours were identified as cutaneous papillomas, cystadenoma of the ovary, angioma, and myxo-fibroma. Some were simple capsulated fibromas. The majority, however, were sarcomata. These were found in all regions of the body, but always in the same tissues. They originated in the subdermal connective tissue and spread along the fibrous septa that cross the body and give attachment to the systemic muscles. They spread by very active infiltrative growth, penetrating between the muscle bundles, and even between the individual muscle fibres. The latter atrophied and died over large regions. The sarcomata began as fibrous growths and then became highly cellular. Many were typically melanotic. There was difficulty in accounting for the multiple growths (or metastases) observed, by transport of tumour cells in the blood vessels, and it was more likely that the lymph channels are involved. The tumours led to great emaciation and finally death of the fish. There seemed to be no evidence of the origin of these growths by local irritative agencies, nor could traumatic injuries be assigned as possible causes. No instance of an undoubted carcinomatous tumour was found, although these were recorded by Gaylord and Marsh in domesticated trout and salmon. Some interesting questions were suggested by a study of malignant tumours in truly wild fish, and there was much need for extensive collection and investigation of all such conditions.

The paper was discussed by Profs. J. M. **BEATTIE** and E. **GLYNN**, and by Drs. T. W. **WADSWORTH** and R. **COOPE**.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

AT the first meeting of the session, held on Nov. 7th, the officers for the new session were elected.

Sir **ROBERT PHILIP**, the retiring President, recalled incidents in the life of the Society during his tenure of office. The Society had worthily fulfilled one of the main ideals of its founders—namely, "the bringing together in friendly rivalry and social intercourse the various workers in this rich metropolitan field of medicine." Sir Robert Philip continued: "If it may truly be said that in no city in the world does the profession of medicine occupy a higher place among the sister professions and the occupations of men, it may certainly be added that, in no centre and at no time have the intimate relations between the various grades of practitioners of the sacred art been more mutually serviceable and pleasanter than just now in this city of ours. . . . I cannot help suggesting that the happy condition is in large part the reflection of ideals that stirred in the mind of our first President, Andrew Duncan." Sir Robert Philip spoke of the numerous societies and enterprises of which Duncan was the founder, including the Edinburgh Hospital for Mental Diseases and the Edinburgh Harveian Society. The address concluded with a tribute to the two secretaries, Dr. W. T. Ritchie and Mr. W. J. Stuart, for their faithful and efficient work. Sir Robert Philip then resigned the chair in favour of Sir David Wallace, the new President.

Sir **DAVID WALLACE** thanked the Society for the honour conferred upon him, and in moving a vote of thanks to Sir Robert Philip, paid tribute to his great organising ability, displayed more particularly in connexion with tuberculosis. The vote was seconded by Prof. **WILLIAM RUSSELL**, and cordially carried.

Mr. **HENRY WADE** delivered a communication on the

Clinical Significance of the Form and Capacity of the Renal Pelvis.

He began by describing briefly the technique he employed in the practice of pyelography, emphasising the importance of preliminary preparation of the patient, whereby he came to the theatre with kidneys functioning actively. In no case was a general anæsthetic employed, as the conscious coöperation of the patient was necessary to indicate by his sensations when the limit of safe distension of the renal pelvis had been reached. He confined the practice of pyelography to in-patients. His present practice was to use a 20 per cent. solution of sodium bromide with which he had obtained the most satisfactory results. He had previously used collargol and thorin solution. In injecting the fluid he employed a 20 c.cm. Record syringe with a very accurately fitting piston, the fluid, suitably warmed, being introduced very slowly, so that any slight increase in tension could be appreciated by the resistance felt and the injection stopped when the least discomfort in the loins was experienced by the patient. In cases where previous lavage had shown a marked increase in the renal pelvic capacity, the distension limit was not sought for, but a measured quantity of fluid used. With the aid of lantern slides the interpretation of results was discussed and demonstrated. Some photograph of casts of normal and diseased pelves, made in fusible metal according to Cathcart's method, were shown, and various congenital abnormalities were demonstrated in casts and pyelograms. Mr. Wade estimated the incidence of single functionating kidney as 1 in 120. In cases of horseshoe kidney a bilateral pyelogram was justifiable, the pyelogram being characteristic and showing especially the unusual appearance of certain of the lower calyces which pass medially. He mentioned that although the unilateral fused kidney was fortunately of infrequent incidence, the importance of its recognition was great from the operative standpoint, and, as in those cases where the ureters were normally implanted in the bladder, its recognition was otherwise impossible; he always employed X ray ureteral catheters and took photographs with these in situ. In describing hydronephrosis he referred to the frequency with which operation in such cases revealed the presence of an abnormal renal artery to the lower pole without any evidence of mobility or prolapse of the kidney ever having occurred. He gave demonstrations of the appearances seen in chronic pyelitis. In referring to renal tuberculosis he said that, although the exact diagnosis could frequently be made without its use, the pyelogram gave a characteristic appearance, showing the normal calyces of the uninvolved portion of the kidney and the outline of the cavity where destruction of the tissue had occurred. In regard to renal calculi, he reminded his audience of the value of X ray catheters. The advantage of subsequent pyelography was demonstrated by cases showing calculi that produced total obstruction and others that permitted the entrance of the injected fluid into a pelvis distended by intermittent backward pressure. The importance of the routine practice of pyelography in all cases of suspected renal neoplasm was emphasised as affording an early indication of the disease by the destruction of certain of the calyces and the thinning and elongation of others at the site of the growth.

In the subsequent discussion, Dr. **CHALMERS WATSON**, Sir **HAROLD STILES**, and Dr. W. A. **ALEXANDER** spoke, and Mr. **WADE** replied.

Prof. **EDWIN BRAMWELL** showed a case of Thomsen's disease, and Mr. **JOHN STRUTHERS** a case of endothelioma growing from the membranes and destroying the frontal bones.

DONATIONS AND BEQUESTS.—The District Infirmary, Ashton-under-Lyne, will receive £500 under the will of the late Mr. George Henry Cooper, of Greenfield (Yorks.).—After several bequests the late Mr. Charles Simon, Whalley Range, Manchester, left the remainder of his property to the Manchester and Salford Blind Aid Society.—The Lord Mayor of Leeds has forwarded a cheque of £1000 to the Chairman of the Board of the Leeds General Infirmary in connexion with the war memorial of the Leeds City Police. This sum has enabled the endowment of a bed in perpetuity in the infirmary.

Reviews and Notices of Books.

Relativity.

A Systematic Treatment of Einstein's Theory. By J. RICE, M.A., Senior Lecturer in Physics at the University of Liverpool. London: Longmans, Green and Co. 1923. Pp. 397. 18*s.*

Relativity and Gravitation: An Elementary Treatise upon Einstein's Theory. By T. PERCY NUNN, M.A., D.Sc., Professor of Education in the University of London. London: University of London Press, Ltd. 1923. Pp. 162. 6*s.*

THESE two books prove that their subject has emerged from that phase of its history when its exponents were rather apt to brandish the weapon of relativity with such dazzling dexterity that they left the reader wondering more at the display of swordmanship than appreciating the sublety of Einstein's conception. All this in time is being corrected, and the two books are serious contributions to the subject from the student's point of view. They are, in fact, both written for the student, and we think it would not be a bad plan if students read the first 30 pages of Mr. Rice's book, and then turned to Prof. Nunn's for his four opening chapters. His subsequent choice we may no longer be concerned about, but he would by this means get about as much of the purely physical concept of the principle of relativity as is possible without settling down to rigid mathematical treatment. If he elects to do this he will get much help from either author; in the end he will probably get more from Mr. Rice, whose treatment of the subject is much fuller throughout. These books are valuable contributions to a subject that necessarily claims a big share in scientific thought.

Prof. Nunn says in his preface that his book should be well within the scope of anyone who has read mathematics up to, or nearly up to, the pass standard required for a B.Sc. degree. If it be true that the average candidate can pass lightly on to the geodesic law of motion and tensor-differentiation, we are quite willing to accept this statement as one further proof of the march of time.

Jacksonian Essay.

The Effects of Radium upon Living Tissues. With Special Reference to Its Use in the Treatment of Malignant Disease. By SIDNEY FORSDIKE, M.D., B.S. Lond., F.R.C.S. Eng., Surgeon to Out-patients, Hospital for Women, Soho-square. London: H. K. Lewis and Co., Ltd. 1923. Pp. 72. 5*s.*

IN this attractive essay the author combines a brief historical account of the effects which radium has upon living tissues with certain experimental and clinical results which he has himself obtained with this agent. The experimental results are those which followed the exposure of the ovaries of cats to various doses of radium radiation; the radium was enclosed in tubes, which allowed egress of practically only gamma rays, and by suitable operation was fixed near the ovary. It was left in position for selected intervals and subsequent microscopic examination of the organ revealed the main changes which had been set up. These are described in some detail and illustrated by some good micro-photographs. In common with other observers, the author finds the extraordinary degree to which the different tissues of the body react to the same dose of radiation. Unlike other authors, however, he does not distinguish between differential and selective action; they appear, in fact, to be used synonymously, for in this connexion we read "this differential action is shown more markedly in rapidly dividing and embryonic tissues, and it is upon this selective action that the clinical treatment of tumours is founded." The clinical results described are those obtained by the use of radium in the treatment of carcinoma uteri, cervix, vulva, vagina, and epitheliomata of the genital skin. In his conclusions upon the question of the efficacy of radium, the author expresses the opinion that in 80 to 85 per cent. of late cases the symptoms are relieved with the minimum amount of invalidism, and he raises the question: "Are we to continue to treat only inoperable cases?"

Included in the volume, though not part of the essay, there is a report on the treatment with radium of 45 cases of persistent uterine hæmorrhage in which the author claims an important rôle for radium, certain contra-indications, however, being noted.

Hæmorrhoids.

Their Ætiology, Prophylaxis, and Treatment by Means of Injections. By ARTHUR S. MORLEY, F.R.C.S. Eng., late Temporary Assistant Surgeon to St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 120. 6*s.*

THIS handbook deals mainly with the injection treatment of hæmorrhoids. The author is a strong advocate for carbolic acid injection, and makes out a good case for his methods. He holds that all cases of hæmorrhoids can be successfully treated by injection, except those which are strangulated and gangrenous or complicated with fissure, and he lays proper stress on the great advantages of avoiding an anæsthetic and a period of lying up. Mr. Morley argues that injection does not produce thrombosis in the injected pile except as a rare occurrence, and this introduces questions which are not easy to answer. If coagulation in the dilated veins does not occur when carbolic acid is injected into them, what is the process of cure? Furthermore, in the absence of coagulation the dangers of absorption should be frequent instead of rare. The author criticises detailed operation statistics compiled from records at St. Mark's Hospital, and argues that the recurrence-rate after operation cannot be estimated by figures showing the percentage of the re-operated. Of course, the same may be true with regard to recurrences after injection. It would be salutary in many branches of surgery if individual results could be assessed—as they can be to a large extent at the Truss Society in the case of radical cure for hernia.

Blood Grouping.

La Individualità del Sangue nella Biologia, nella Clinica e nella Medicina legale. By Prof. LEONE LATTES, Director of the Institute of Legal Medicine in the University of Modena. Casa Editrice Giuseppe Principato, Messina. Pp. 174. L.18.

THIS little book is an extensive compendium and historical survey of the greater part of the work that has been done in blood grouping and its clinical and legal applications. It, moreover, embodies some of the researches of Prof. Lattes on the practical application of the agglutination test in the specific and individual diagnosis of human blood, the biological demonstration of paternity, and individual diagnosis of blood stains. There is a very extensive bibliography containing about 300 names, which include those of W. M. Happ and S. C. Dyke who have worked at the same subject in this country. The earlier chapters deal with the spontaneous reactions of individuality, iso- and auto-agglutination, the individuality of the blood as an hereditary factor, and consider also an ethno-anthropological view. Much useful information is to be found on these matters gathered from almost every possible source. A long chapter is devoted to the clinical application of blood groups with regard to transfusion from the point of view of incompatibility between the blood transfused and the individuality of he host. Another chapter treats of the medico-legal spects of blood grouping and describes more in etail Prof. Lattes's technique for the examination of lood stains, devised with the object of eliminating seudo-agglutination which is a source of error in ndividual diagnosis. We can recommend this book o those interested in this subject.

ULMONARY TUBERCULOSIS.

Die Lungenphthise. Ergebnisse vergleichender Röntgenologisch-Anatomischer Untersuchungen By Prof. S. GRÄFF and Prof. L. KÜPFERLE. Berlin: Julius Springer. 1923. With 221 illustrations, 10 photographic tables, 8 stereoscopic plates, and 3 coloured illustrations. Pp. 236. £2.

THIS work is published in two parts, the first ncluding the text, the second being devoted xclusively to the numerous and excellent illustrations. ne of the authors, Prof. Gräff, is professor of patho- ogical anatomy in Heidelberg, and the other, rof. Küpferle, is professor of internal medicine in reiburg. The guiding principle of their combined ork is to establish coöperation between the radio- ogist and physician on the one hand, and the morbid natomist on the other. To put this principle into ractice, they have together followed a number of ases from the hospital to the deadhouse, and most f their work is a detailed record of 52 such cases. he first part of this book is packed with clinical and athological detail, and the second part is an instruc- ive atlas showing side by side skiagrams and post- ortem dissections of one and the same case. Much bour has evidently been spent on this work, which hould be useful for reference to persons or institutions whom the expenditure of £2 is not an insuperable bstacle.

The Tuberculosis Worker. A Handbook of Methods and Programs for Tuberculosis Work. By PHILIP P. JACOBS, Ph.D., Publicity Director, National Tuberculosis Association. Baltimore, U.S.A.: Williams and Wilkins Co. 1923. Pp. 314. $3.50.

IN this most instructive book the author takes e reader behind the scenes and shows him every heel and lever of the complicated machinery which as made the organisation of the tuberculosis cam- aign in the United States a model of its kind. For he sake of convenience the book is divided into two arts. The first deals with methods, the second with rogrammes. "Methods" are classified according as ey are clinical or financial. There are also nursing nd institutional methods, and it is perhaps inevitable hat with this elaborate classification of subjects here should be a certain amount of overlapping. uch space is devoted to the organisation of publicity ampaigns, and advice is given as to how editors *hoc omne genus* are to be tactfully managed. It is lso pointed out that from 20 to 40 million people the United States do not regularly read the news- apers, and special provision must be made for ropaganda in this class. Interesting hints are given n the organisation of motion pictures and other hibits, and throughout the book the reader is given metimes quaint, but always helpful, advice with gard to the psychology of his fellow-beings. The berculosis worker must be all things to all men, d however enthusiastic he may be, he is not likely be highly efficient unless he has mastered his bject so completely that he has it at his finger-tips. uch has been written and spoken about coördinating berculosis work in this country; in the U.S.A. ördination in this field seems not only to be written d talked about, but to be an accomplished fact. his book has a message, not only to the whole- me tuberculosis officer, but to part-time workers, edical and lay, all of whom will find that tuber- losis machines, like clocks, must be properly bricated and wound up periodically.

JOURNALS.

JOURNAL OF PHYSIOLOGY. Edited by J. N. LANGLEY, Sc.D., LL.D., F.R.S. Vol. LVIII., No. 1. 1923. 10*s*.—Physiology of Plain Muscle: (1) The Effect of Alteration of Hydrogen-ion Concentration on the Tone and Contractions of Plain Muscle, by C. Lovatt Evans and S. W. F. Underhill; (2) The Oxygen-Usage of Plain Muscle, and its Relation to Tonus, by C. Lovatt Evans.—On the Absorption of Insulin from the Stomach, by L. B. Winter. It is known that insulin is rapidly destroyed by pepsin and trypsin in vitro, and it is probably for this reason, rather than inability of insulin to pass the intestinal wall, that administration of pancreatic extracts by the mouth have been relatively ineffective. In accordance with the fact that alcohol is absorbed from the stomach and water is not, weak alcoholic solutions of insulin were introduced into the stomach of rabbits previously accustomed to the absorption of alcohol by gradually increasing doses on successive days, until 4 or 5 c.cm. of 95 per cent. alcohol, suitably diluted, could be absorbed without interfering symptoms occurring as a result of the alcohol. Blood-sugar determinations were made by Bang's method—the blood being obtained from the marginal vein of the ear. It was found that insulin in weak alcoholic solution and administered per os causes the blood-sugar to fall to low level, and this effect was not observed when similar amounts of insulin were dissolved in normal saline, or in N/20 NaOH.—Does Insulin Influence the Glycogenic Functions of the Perfused Liver of the Turtle? by E. C. Noble and J. J. R. Macleod. Turtle liver is chosen for the study of glycogen formation because its main blood-supply is carried to each of its two lobes by separate branches of the umbilical vein. The remarkable effect which insulin has in causing glycogen to be deposited in the liver of completely diabetic (depancreatised) dogs fed richly on carbohydrates would seem at first sight to indicate that a part at least of the sugar which disappears from the blood of normal animals following insulin is due to glycogen formation. But such a conclusion is not justified in the absence of direct evidence that glycogen is formed in the normal animal under these conditions. It was found that varying concentrations of insulin in the perfusate did not influence the rate of sugar output from the excised liver, neither immediately nor after a period of 90 minutes. The conclusion arrived at is that the rate of post-mortem glycogenolysis in excised turtle liver is not influenced by the presence of varying concentrations of insulin at ranges of pH between 7·0 and 7·4.—The Rate of Recovery of Nerves in Asphyxia, by Sybil Cooper. Experiments carried out on the sciatic-gastrocnemius preparations of frogs show that the nerve does not require oxygen for the actual transmission of the impulse or for the recovery of excitability and conductivity. Oxygen, however, is necessary to remove the breakdown products formed during the passage of the impulse, so that the next impulse may find an adequate local supply of energy for its transmission. —On the Ovarian Factor Concerned in the Occurrence of Œstrus, by F. H. A. Marshall and W. A. Wood. The experiments were conducted on three bitches. The ovaries having been exposed, all the Graafian follicles visible on the surface were cauterised a short time before the œstrus was due. It was found that the heat period was missed and there was a prolonged period of anœstrum which might extend over the duration of two or more œstrus cycles. That the uterus did not atrophy was shown by the subsequent reappearance of heat and the resumption of normality. If, however, the follicles were only cut into without being destroyed, heat was not postponed or only slightly so. The general conclusions reached are that proœstrum and œstrus are due to an internal secretion of the ovary produced by the follicles during the pre-inseminal stage of development. Uterine and mammary hypertrophy during pregnancy and pseudo-pregnancy depends on another secretion, that of the corpus luteum. The normal nutrition of the uterus is maintained by yet a third internal ovarian secretion, produced by the smaller follicles or by the interstitial cells. All three secretions probably differ from one another qualitatively as well as quantitatively.—The Regulation of Respiration, by Thomas Lumsden. The three lower respiratory centres are regulated partly by chemical conditions—lack of O_2 and excess of CO_2—and partly by nervous influences—mainly vagal and trigeminal. (1) The "gasping centre" at the nœud vital is stimulated more powerfully by a combination of chemical factors, while the vagus has an inhibitory effect. Vagotomy invariably tends to liberate gasps. (2) The expiratory centre is merely impaired by oxygen-lack, and vagal stimulation is inhibitory. Vagotomy releases and prolongs active expiratory movement. (3) The apneustic centre, situated at the level of the striæ acousticæ, is stimulated by excess of CO_2 and by a moderate lack of O_2. Severe lack of O_2 causes the inspiratory tonus (apneusis) to fail and so indirectly as well as directly liberate gasping. Vagal stimulation inhibits apneusis, thus on occasions allowing the "gasping centre" unrestrained activity. Thus the effect of vagal stimulation on these centres is a tonic one in accelerating the rhythm of respiration and in diminishing the respiratory movements. Vagotomy, on the other hand, slows and deepens respiration.—Nerve Regeneration from One into the Other of Two Rats United in Siamese Pairs, by B. Morpurgo. If the rats are united parabiotically no nervous connexions are formed between them. To verify if this was due to the incapacity of the nerves of one individual to grow into the other, artificial nervous connexions were made in Siamese pairs of rats as follows: The cut end of the proximal stump of the right sciatic nerve of the left-hand rat was brought into apposition with the cut end of the distal stump of the left sciatic nerve belonging to the right-hand rat; whilst the proximal portion of this nerve was torn away from its roots. On the seventh day the connected nerve stumps were surrounded by recent granulation tissue, and outgrowing fibres from the axis-cylinders of the central stump had nearly reached the granulation tissue. On succeeding days the newly-formed fibres advanced into the peripheral stump and on the twentieth day had reached the popliteal space. Between the forty-fifth and sixtieth day they had reached the periphery, when they formed new end-organs. The regenerated motor end-plates were super-abundant and the regeneration of the nerve-endings took place in both rats. Muscle-spindles and neuro-tendinous organs also regenerated. Physiological experiments showed that after one month and a half motility, sensibility, and reflexes appear again in both legs; the contractions of the muscles in the right-hand rat can be caused by stimulating the sciatic nerve of the left-hand rat near the exit of the nerve from the pelvis; after two months and a half cross-end reflexes also appeared.—The other papers are two by J. N. Langley on Antidromic Action, and on the Vascular Dilatation Caused by the Sympathetic and the Course of Vaso-motor Nerves; an Ergometer Adaptable for Either Hand- or Foot-movements, by E. P. Cathcart, G. M. Wishart, and J. McCall; Colormetric and Electrometric Methods for Hydrogen-ion Concentration of Blood, by Ruth Conway-Verney and L. E. Bayliss; A Possible Relation Between the Pancreas and the Parathyroids, by L. B. Winter and W. Smith, in which it is shown that after a preliminary injection of parathyroid extract into rabbits convulsions are induced following one-third to one-quarter the normal dose of insulin.

Reports and Analytical Records.

BOVININE: A RAW FOOD EXTRACT.

(New York: Bovinine Company; London, J. D. Bishop, 22 and 23, Great Tower-street, E.C. 3.)

More than 30 years ago our analysis of this concentrated form of beef, which is prepared on scientific principles, showed an albumen content of as much as 16·96 per cent., calculated on nitrogen, with total organic matter of 17·77 per cent.; the mineral matter consisting chiefly of iron and phosphoric acid was 1·43 per cent. The food value of the extract is therefore high and many years of trial have confirmed its value where a nutrient capable of easy assimilation is indicated. Both with adults and infants good results have been obtained in illness, and in convalescence, especially in cases of gastric disturbance accompanied by loss of appetite and anæmia, the preparation has been found useful. The dose for an adult is half to one teaspoonful, gradually increased to a tablespoonful, either before or after meals and on retiring at night; it should be well diluted in milk or water, but other diluents can be substituted to meet the case. The dose for an infant is 5 to 10 drops in the food or mixed with barley-water; in this way it can be given at frequent intervals.

ZINC OXIDE RUBBER ADHESIVE PLASTER.

(Messrs. Edward Taylor, Ltd., Salford, Manchester.)

The gently astringent action of oxide of zinc on raw surfaces is well known and its application in connexion with adhesive plasters is an advantage in suitable cases. Messrs. Taylor, Ltd., supply, in spools containing 5 or 10 yards respectively and varying from $\frac{1}{4}$ inch to 4 inches wide, a rubber zinc oxide adhesive plaster which is a very effective form of application. It is antiseptic, non-irritating, and adheres without heat or moisture, while the flesh-coloured cloth on which the plaster is spread has a certain cosmetic value.

SCILLAREN.

(Sandoz Chemical Company, Ltd., Bradford.)

Scillaren is a glucoside of squill and is supplied in tablets, solution, and ampoules. The action of squill is well known to resemble that of digitalis, but some constituent of squill, when excreted by the bronchial mucous membrane, acts as an expectorant. A stable preparation, supplied in convenient forms, will be found useful in the many conditions where the drug has been satisfactorily employed for something like a century.

PINEOLEUM.

(American Drug Supply Company, 40–42, Lexington-street, London, W. 1.)

We have received samples of Pineoleum Brand Inhalant which has been found by laboratory tests to be a standardised preparation, and to exert inhibitory action on various micro-organisms. Pineoleum has been sprayed upon the surface of culture-media contained in Petri plates and previously inseminated with test organisms, a sufficiently fine spray being obtained by the nebuliser provided with the drug. Slightly less than 0·25 c.cm. of the fluid was sprayed on the culture-media in each experiment. Petri plate cultures, prepared with test organisms under exactly similar conditions, but to which the Pineoleum had not been applied, being used as controls. The controls and the sprayed cultures were incubated for three days at 37·5° C. before the final readings were made. The results showed Pineoleum to have certain inhibitory properties in regard to the meningococcus and the Klebs-Löffler bacillus, while with the *Bacillus influenzæ* the action was apparently marked. A convenient form of nebuliser is supplied by the company, so that spraying into the mouth and throat is rendered easy, and the use of the preparation in this manner has been followed by relief in coughs accompanying influenza. The inhibitory action suggests that Pineoleum can be used as a preventive measure not only in influenza but in other communicable conditions.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 24, 1923.

CONVALESCENT CARE.

With a widening conception of the laws governing public health, the public is coming to realise the importance of minor degrees of disease as factors productive of much individual and national distress. The increasing number of patients who seek advice at the out-patient departments of our great hospitals points, not to a greater incidence of disease, but to this appreciation of the value of treatment as a preventive, or as an aid to speedy recovery once the acute stage of an illness is over. The medical profession has long insisted upon the need for prophylaxis, and now the importance of careful convalescence is being urged. Speaking to the Society of Medical Officers of Health, the incoming President, Dr. T. W. **Naylor Barlow**, expressed the opinion that much ill-health and many of the disabilities in adult life leading to casual labour and poverty are caused by incomplete convalescence from the so-called minor ailments of childhood. While that is undoubtedly true, the effects of insufficient convalescent care after many diseases of later life can be no less crippling. In 1920 the Birmingham Hospital Saturday Fund spent more than 50 per cent. of its total collections on the upkeep of convalescent homes, and in the same year Sir **Napier Burnett**, in a survey of the hospital situation throughout England and Wales, recommended that every encouragement should be given for the establishment of convalescent hospitals in the country, for the dual purpose of pre-hospital and post-hospital care.[1] This movement towards the systematic treatment of convalescence and sub-standard health conditions has received further emphasis by the inauguration of the magnificent Astley Ainslie Institute in Edinburgh, and the opening, this week, of the Catherine Gladstone Home at Mitcham, Surrey, in connexion with the London Hospital. In America the Burke Relief Foundation, which has functioned since 1915, has enabled valuable conclusions to be drawn regarding the necessity of convalescent facilities for balanced advance in public health work.[2]

Thus the convalescent home is ceasing to be regarded as a luxury of the well-to-do, and the establishment of such institutions for the poor is now recognised as an economic factor of national importance. Indirectly, by giving an opportunity to study disease from a viewpoint hitherto rather neglected, the convalescent home will extend the field of the hospital; but, more directly, acute conditions may be aborted, or distressing sequelæ averted, in patients whose disability does not justify their claim to the costly resources of a hospital bed. Among the hospital population an ailing member in the family circle is often a burden that soon becomes intolerable, although the patient is considered to be out of the doctor's hands. In this connexion may be instanced certain subacute heart and kidney cases, where the only treatment called for is rest and respite from the demands of an active life. The instructions to "take it easy" are often impossible of fulfilment in the home, and yet the swollen waiting lists for the hospital wards require immediate dismissal of a case so soon as the danger period is passed, although the patient may be actually still unfit for the exigencies of normal life. This is the gap—between unfitness and a return to normal activity—that the convalescent home is designed to bridge. Apart from the obvious physical advantages to the patient from a more or less prolonged and carefully supervised sojourn in convalescent home, the psychological aspect of this treatment is of the greatest importance. Convalescence should be a period of re-education to the normal standards of self-supporting existence. This point is—often of necessity—frequently overlooked by the hospital physician; but to the patient, whose body and mind have been exhausted in a long struggle with disease, the return to family life may seem at first overwhelming. Attention to an invalid who is not ill enough to be interesting is apt soon to become irksome, and the patient, sensitive to his or her temporary uselessness among wage-earners, may easily give way to despondency and despair, thus making matters worse all round. In the Burke Foundation scheme great importance is placed on re-education, and results amply justified the experiment. The therapy of "help each other," with the hopeful outlook a non-medical atmosphere engenders in the mind of the convalescing patient, was found to be more valuable in promoting a speedy recovery than much elaborate medication. Each case, of course, must be treated on its own merits, and the right selection of patients for convalescent treatment is essential.

There is no need for the convalescent home to be an elaborate and costly institution, the simpler and the more self-supporting it is the more will its purpose be furthered. The provision of such centres would greatly lighten the work of the hospitals and reduce expenses considerably, while meeting a very real and urgent need among the people. Until—if ever—the nation is adequately housed, the benefits of hospital treatment are too often annulled by the immediately subsequent conditions of home life in a hovel. We commend to testators and donors a fruitful outlet for wealth.

THE INTIMATE MECHANISM OF INFECTION.

In spite of the voluminous literature upon the subject of immunity, the intimate mechanism by which the body resists and overcomes organismal invasion is still very far from being understood. The work of the last 20 years, and the arguments of the humoral and cellular schools, have given us an enormous mass of facts and experimental data upon the interaction of bacteria and their products with the body fluids and cells under various conditions. Search has been made for a simple mechanism which will explain all cases, and this is probably a search for something which is non-existent. Organisms differ so enormously in their physical properties and biological activities that immunity in all likelihood exists in many types. The main result of the enormous mass of work which has been expended upon this subject in the humoral field has been to elucidate a train of test-tube reactions, such as the precipitin, agglutination and complement-fraction tests. These have become of great importance not only in diagnosis but in medico-legal work and even in the field of commerce; and yet they are only by-products of the main line of research, and as far as can be seen play no very important part in the bodily mechanism of resistance, defence, and recovery, although they may be coincident phenomena. In the cellular field **Metchnikoff's** classical studies overtop everything, and here indeed there has been a good deal of enlightenment, although the phagocytic doctrine is far from being sufficient to explain every case. In these circumstances it is only natural to ask if other forms of aggression, on the part of the organisms, may not exist side by side with corresponding means of defence on the part of the body, and to inquire if in our extant studies we have not largely missed the mechanism involved.

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[1] The Lancet, 1920, ii., 1226.

[2] Ibid., Sept. 1st, 1923.

This aspect of the problem is the theme for a recent essay by Dr. **ARTHUR EASTWOOD**, published by the Ministry of Health.[1] In reviewing the existing work he is considerably attracted by the old hypothesis of **BAIL**, that in its growth in the body the bacterium produces a special form of toxin, named by its discoverer "aggressin," which enables it to establish itself and to successfully overcome the forces of resistance. The fundamental experiment of **BAIL** consisted in inoculating a culture of an organism into one of the serous cavities of an animal. After a certain incubation period the resulting effusion was withdrawn and freed from organisms; it was then found that the sterile fluid, although in itself relatively non-toxic, had the power of so raising the potency of a culture that a dose of the latter, ordinarily non-fatal, became easily lethal when mixed with this fluid. Further, the "aggressin," as the active principle of the fluid was called, had the capacity of exciting immunity when injected alone; so that from the point of view of these experiments the problem of immunity became one of reaction between aggression and antibody called forth in response to its presence. The objection to **BAIL**'s theory has always been that the highly complex material which contained his aggressin contained also both endo- and exo-toxins from the organisms injected, as well as protein degradation products, and that the results, far from being due to a single substance, were due to a very varied mixture of substances. The aggression theory has lain on the shelf, little disturbed, for a number of years now. Interest has recently been revived by an account of somewhat similarly acting bodies which **ZINSSER** has obtained in vitro. Dr. **EASTWOOD** thoroughly surveys the work in this field, and although he has an evident liking for the hypothesis we have discussed, he concludes that its truth has not been definitely proven. He gives us a most interesting discourse upon virulence, but at the end we are still left wondering what it is that makes an organism pathogenic.

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THE SPECIAL COURT OF INQUIRY.

LAST week, as every one knows, the Panel Conference took the bold and straightforward course of accepting a Special Court of Inquiry to determine the amount of the capitation fee to be paid next year. The decision to do so, although it was not reached until after a critical debate, was in the end unanimous. During debate it was pointed out with justice that a voluntary association cannot keep up interminably a fierce struggle, that a Court of Inquiry would give unlimited opportunity for mud throwing at the panel service, and that an award of less than the Minister of Health's offer would spell irretrievable disaster. But the argument as put from the chair appealed irresistibly to the Conference: If your case is really very sound, go for the Court of Inquiry and have it settled properly. The fact was recognised by this resolution that no organisation can afford to act illogically. What, indeed, is the purpose of organisation except to stand out for just rights? Criticism of the panel service by friendly society officials must be met somewhere, within or without Parliament, and the campaign of propaganda (it has been called "impropaganda") has already been set going by circulars to insured persons. A Special Court of Inquiry is indeed in another form the arbitration which was repeatedly asked for by the panel executive and refused by the Minister—or so it must be regarded by the thinking public whose sympathy it is essential for the doctors to retain. This is the simple train of thought which led to the decision, and it is unnecessary for us to report further the stages by which it was reached.

The political situation will not materially affect the Court of Inquiry. As our Parliamentary correspondent tells us, the Minister of Health had already issued invitations to possible members of the court before Parliament was prorogued. The court is to be composed of three or five persons of the type of those who arbitrated in 1920, and there is no reason to doubt their impartiality. The actual terms of reference have not yet been drafted, but the court will be asked what would be the proper capitation fee to be paid to insurance practitioners for their services as from Jan. 1st next on the basis of the existing terms of service, with the modifications resulting from the negotiations of this summer. The Minister has let it be known that it will be open to all parties to appear before the court, and that the approved societies, "who represent to a very large extent the insured population," will have the fullest rights to state their views. The court, however, will only be competent to consider such evidence as will assist it to decide what the service as above defined is in fact worth; wider questions of policy will remain to be dealt with by the Royal Commission. It will be therefore for the Commission and not for the Court of Inquiry to consider such questions as those raised by the National Medical Union in a circular, of which a copy has been sent to us, entitled "The National Health Insurance Act from the point of view of the Non-Panel Doctor." The Union is of opinion that, as long as human nature remains what it is, contract practice of any kind will be thoroughly unsafe and bad, for the reason that it inevitably means a maximum of profit for a minimum of work. The Act has, it is stated, actually increased the poverty of those who through frequent illness are reduced to a chronic state of distress, without relieving their ill-health. Anyhow, the loss of independence and self-respect, alleged to be induced by the Act among both insured people and the doctors who attend them, more than counterbalances the relief afforded. Furthermore, the Act provides men of inferior ability and qualifications with a comparatively quick method of obtaining a livelihood, and until the medical benefit portion of the Act is remodelled or erased, the quality of medical practice will continue to deteriorate and the health of the people will suffer. This is the considered opinion of a responsible group of general practitioners, and it would surely be impossible even for approved society officials to state a case with more vigour. But the Union is not against the principle of national insurance as such, and believes that a solution may be found in a system of unfettered private practice under a contributory scheme by which the insurance pool would be used for payment of medical bills. The work of the Court of Inquiry will be done when the total amount of money to be distributed among the doctors engaged in insurance practice has been determined. It will remain as heretofore largely for the doctors themselves to determine the method of distributing the pool. Those, however, who are best qualified to judge see little evidence during the last ten years in support of the assumption that contract medical practice has deteriorated, while vital statistics refute the suggestion that the health of the people during that period has suffered.

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MEDICINE AND LITERATURE.

AT the Royal College of Physicians of London on Nov. 20th Mr. **EDMUND GOSSE**, LL.D., delivered the first David Lloyd Roberts Lecture, taking as his subject Personal Relations Between Medicine and Literature. Sir **HUMPHRY ROLLESTON**, who presided, referred to the occasion as unique not only because that was the first lecture under the David Lloyd Roberts Bequest, but also because the College had never before had the honour of sharing a lecture in common with the Medical Society of London and the Royal Society of Medicine. He recalled the circumstances of the founding of the lectureship, and claimed credit for the choice of the first lecturer.

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[1] Reports on Public Health and Medical Subjects, No. 22. Bacteriological Studies: I. "Factors Determining Bacterial Virulence." H.M. Stationery Office.

Mr. Gosse described himself as not personally acquainted with Dr. Lloyd Roberts, and therefore as dependent for his impressions of the latter on the reports of others, chief among whom were Dr. W. E. Fothergill and Dr. Herbert Spencer. He understood that Dr. Lloyd Roberts, although reticent as to his exact age, was at least 85 when he died in 1920. He was a self-made man, who, like Keats and Ibsen, received his first impressions among the gallipots of an apothecary; he retained throughout his life a certain roughness of temper. Mr. Gosse went on to say that they were met not because Dr. Roberts was a great gynæcologist, but because he frequented bookshops as a collector in the best sense of the word. He himself was anxious to approach his subject in the spirit which Dr. Roberts would have wished; in his own first youth he had had the ambition to be a surgeon, and although constitutionally unfitted for the career had proceeded a little way in it. Passing to what history offered in testimony of the relation between the professions of medicine and literature, Mr. Gosse said he wished to separate the two groups, usually joined, of men who had given literary form to their medical writings, and of men who had written prose and poetry apart from their profession. The greatest of ancient physicians were conscious of literary form; Ambroise Paré had noticed that Hippocrates took care to write simply and clearly, apparently that women and girls should be able to understand his meaning. Phœbus Apollo, destroyer and healer, was god of medicine as well as president of Parnassus. There was no need to recall the fact that the author of the "Religio Medici" was a man of letters. Salerno, celebrated for its salubrity of climate, had formed the nucleus of medical education in the early Middle Ages. Little though we knew of this school, it was a shining lamp amid the darkness of the ninth century; when all other education was crushed into ecclesiastical form, the school of Salerno held to sanity amid priest-ridden superstition and ignorance. The professors of Salerno wrote in clear language, using no inflated jargon of the other schools; he liked to think that something of the Greek spirit remained with them—that they cared for the humanities as well as for humanity.

Tracing the apparent influence of the Salernians on later medical literature, Mr. Gosse expressed himself as unable in the short time at his disposal to deal with Rabelais and Montaigne, but hoped that some successor would expatiate in those directions. Paré first dared to address the ordinary reader in the latter's own language, although his fellow physicians tried to suppress his works on the ground that their terms were intelligible outside the profession. Early in the seventeenth century the writings of Paré were translated into English; Sir Thomas Browne then began to compose the "Religio Medici"—the earliest work in which the harmony between the physician and the man of letters was apparent. In 1659 Thomas Spratt, afterwards Bishop of Rochester, published a poem which nominally dealt with the plague at Athens described by Thucydides, but really referred to the outbreak which had lately occurred at Naples. Such an extended work entirely on medical themes was not repeated until Garth published his poem 40 years later. Continuing, Mr. Gosse referred to Sir Thomas Browne, to Locke, the friend of Sydenham, and to Sir Richard Blackmore, whom he described as a reputable physician misrepresented by the hostility of Dryden. Blackmore, who became a Fellow of the Royal College of Physicians in 1657, produced two long and vapid poems, Prince Arthur and King Arthur, which were widely read and savagely attacked, the writer also being asked why he did not treat of some useful medical subject. After that time the question was no more raised in England; the barrier between imaginative literature and medical science was finally broken down when Sir Samuel Garth's long mock-heroic poem, The Dispensary, dealing with the quarrel between physicians and apothecaries over the furnishing of free drugs to the poor of London, appeared in 1699. Garth's poetry was only half-poetry, and his science only half-science, but he drew the subjects together as they had never been drawn before. Before Garth died the connexion between medicine and literature had become not the exception but the rule; a warm comradeship was established between doctors and authors in the greatly improved civilisation of the reign of Anne. Pre-eminent among the lettered physicians of those days was Dr. John Arbuthnot, who took up the mantle of Garth, and was always most at home in the company of authors. Pope and Swift were invalids, neurotic to excess, made difficult of access by intense nervous irritability; the cheerful humour of Arbuthnot was their constant bromide. Also among his friends were Gay, Parnell, Atterbury, Steele, and Congreve. An Aberdonian, Arbuthnot gained slow recognition in London, until Prince George was taken suddenly ill at Epsom when Arbuthnot happened to be present—an illustration, remarked Dr. Gosse, of the fact that talent and industry were insufficient for success without the sovereign element of good luck. Arbuthnot became a Fellow of the College in 1723; he remained a planet in the constellation of wits for a quarter of a century. He was still remembered for the irony of his "History of John Bull"; of his medical writings the most famous dealt with the nature of "animates"—what would now be spoken of as vitamins. Of medical men who made names in literature during the eighteenth century, Oliver Goldsmith and others never received recognition from the College; but Mark Akenside, poet and anatomist, enjoyed every distinction the College had to bestow. Coming to the present day, Mr. Gosse recalled the fact that the Poet Laureate was a medical man, and expressed his belief that if Dr. Roberts had chosen to perpetuate his subject in sculpture, instead of by oratory, he would have selected a statue of Arbuthnot, together with busts of Pope, Swift, Steele, and Gay, to crown the monument.

Annotations.

"Ne quid nimis."

DENTAL BOARD OF THE UNITED KINGDOM.

The autumn session of the Board was opened on Nov. 13th at 44, Hallam-street, W., when the chairman, Mr. F. Dyke Acland, delivered an address. Only within the last few months, he said, had the Board been able to begin to deal with the many important duties which would normally devolve upon them, the first 18 months of their time having been occupied with the machinery of registration. The day seemed to draw nearer when by the process of ordered evolution the Board might, much to the regret of its other members, lose the representatives from Southern Ireland. The passing of the Dentists Act of 1923, which became law in July, necessitated an amendment of the Regulations; an opportunity would be taken to amend the table of fees, and to obtain authority for their remission in certain cases, in order to carry out the wishes of the Board and prevent hardship for those who would have qualified prior to the passing of the Dentists Act, 1921, had it not been for the war.

It was, Mr. Acland said, of the utmost importance, if sufficient dentists were to be obtained to meet the requirements of the population in future, that the number of students should be increased. The Board had already taken steps to this end; large sums of money had been expended in helping those who found that the Government grants were not sufficient to enable them to complete the curriculum; a beginning had also been made in the granting of bursaries to persons who, for want of means, would have been unable to enter upon the profession of their choice. It would be necessary to spread these over as large a number of students as possible, and, though the grants hitherto had been on a liberal scale, the Board might not be able to continue them so freely, and experience alone would show what could be done in this direction. In connexion with propaganda for instructing the public in the great importance of having their teeth properly attended to at regular intervals, and of taking care to prevent decay, from the point of view of the health of the nation this matter required earnest consideration; he felt sure it would be to the public advantage if the Board could take steps to carry out some of the suggestions made in the Report of the Departmental Committee. Applications had been invited from schools for assistance to enable them to deal with a large number of students when these have been obtained, and to give them the best facilities for instruction. Arrangements had been made for an extension of the lectures on the higher scientific branches of dentistry given in the early part of this year. It was hoped that full advantage would be taken of them, and that, when published in pamphlet form as they would be, those who desired to study at their leisure the valuable information provided would have an opportunity of adding the work to their professional libraries at small expense. Courses of instruction had also been provided for persons who obtained registration in virtue of long years of practice, or of having passed the prescribed examination. Great assistance in this direction had been rendered by some of the dental schools, which was much appreciated, and the Board had arranged for experimental courses to be held at three or four centres where such schools are not available. The indications were that the applications to attend would be numerous. The Board were much gratified by the help promised in the direction of research both by the Medical Research Council and the Department of Scientific and Industrial Research. It was hoped to make considerable grants, extending over a series of years.

The Board, Mr. Acland continued, had to consider an arrangement arrived at between the British Dental Association and the Parliamentary Committee of the Coöperative Congress in regard to the association of dentists with coöperative societies. This question, which at one time threatened to prove very difficult, had through the good offices of the officials of both of these bodies, been solved so far as they are concerned. The question, however, has been raised as to whether the arrangement come to constituted the carrying on of the business of dentistry by the societies, and this the Board would have to consider. At present there appeared to be some difficulty in regard to panel practice, and, though the matter was not one which directly concerned the Board, it might be necessary to take it into consideration. With regard to disciplinary cases, there had been a noticeable improvement in regard to advertisements, signs, and other matters which, from a professional point of view, were not desirable. The time had now come when all dentists might be expected to know the views of the Board on the subject, which in the main might be summed up by saying that signs, other than those necessary to enable patients to find the premises they sought and announcements in the press, which contained the word "dentist," or anything relating to dentistry, might be considered to be advertisements; and before long it might be necessary for the Board, instead of warning practitioners, to summon them to appear in answer to a charge which, if found proved, might have very serious consequences for those concerned. The Board had successfully undertaken a considerable number of prosecutions of persons illegally practising dentistry; in view of the fact that the Act has only been passed recently, merely nominal penalties had been asked for. In this matter, again, the time was coming when the Board would have to ask that offenders might be severely dealt with. Magistrates had sometimes said that offenders had received no warning from the Board, but it must be borne in mind that, if it were customary, before taking proceedings, to warn, there were some persons who possibly would carry on to the last possible moment in expectation of this, and some persons, if warned in one district, would promptly move to another. It must be clearly understood that for an unregistered person to see a patient, whether in connexion with the fitting of artificial teeth or in any other way, was a breach of the law; and it was the intention of the Board to see that the provisions of the Dentists Act, 1921, were strictly carried out.

RAPPROCHEMENT WITH VETERINARY MEDICINE.

An excellent example of the light which may be thrown upon the problems of human physiology and pathology by research undertaken from a purely veterinarian standpoint is afforded by investigations recently made by Dr. Theobald Smith and Ralph B. Little, V.M.D.,[1] at the Department of Animal Pathology of the Rockefeller Institute for Medical Research, into the significance of colostrum to the new-born calf. The investigation originated in an attempt to throw some light upon the high mortality of calves in the first week of life; this high mortality due to "scours," inflammation of the umbilical stump, and acute arthritis is the bane of owners of prize herds to whom it means the annual loss of many valuable animals. The infective nature of the fatal conditions has long been recognised and attempts have been made to combat them by isolating the calf immediately after birth and feeding upon sterilised or "clean" raw milk. The proved futility of these measures seems to have afforded the stimulus for the work of Smith and Little. They took two groups of calves; the animals constituting the first group were removed from their dams as soon as born and before they had had the opportunity to suckle; they were washed and dried with all possible aseptic precautions, the umbilical cord was snipped off and treated with antiseptics, and the calves then wrapped in blankets and transferred in a specially protected motor-lorry to the experimental units of the Department, a distance of about one and a half miles. The animals of the second group were left with their dams 24 hours, during which time it was ascertained that they suckled freely. They also were then removed to the Department units. At the units the calves of both groups were subjected to exactly the same treatment and given the same diet of fresh raw milk. Attention was directed to the condition of the calves during the first week of life, this, as pointed out above, being the danger period. During this time the fates of the animals constituting the two groups were strikingly different. Of the ten calves which had taken freely of colostrum, all remained alive and healthy; of the 12 which had received none only three survived this first week. In the nine animals which succumbed death was in every instance due to a blood infection by *B. coli*, this organism being readily recoverable from the spleen, liver, and kidneys, and in those which had developed arthritis from the joints also.

Although they do not definitely say so, the impression of the authors appears to be that the infecting strain of *B. coli* was not necessarily pathogenic. It is known that both in man and the lower animals *B. coli* appears in the bowel very shortly after birth; the conclusion of Smith and Little is that in the absence of the colostrum this organism, instead of remaining a harmless saprophyte in the gut, gains ingress to the blood-stream and gives rise to a systemic infection. In the human field the above piece of research is complementary to recent observations on the constitution and function of the colostrum. Thus Lewis and Wells[2] have shown that the blood of babies at birth contains little globulin and practically no euglobulin; colostrum they found to be rich in both these bodies. Moreover, they clearly demonstrated that whereas the proportion of these bodies rose rapidly in the blood of babies who had received colostrum, in those who had not the normal level was not attained for several weeks. It has long been recognised that antibodies of all sorts are associated with the globulin fraction of the serum, and the above authors suggested that the colostrum is the vehicle of conveyance of the maternal antibodies to the serum of the offspring. The observations of Smith and Little throw light upon several other points in human pathology which cannot be touched upon here; but alone in giving practically conclusive proof of the validity of the tentative suggestion of Lewis and Wells they demonstrate the value of the comparative outlook in medicine.

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[1] The Significance of Colostrum to the New-born Calf. Theobald Smith and Ralph B. Little. Studies from the Rockefeller Institute for Medical Research. Reprints, xliv., 523.

[2] The Function of Colostrum. J. H. Lewis and H. G. Wells, Jour. Amer. Med. Assoc., lxxviii., March 25th, 1922, 863.

THE ÆTIOLOGY OF URINARY LITHIASIS.

Linwood D. Keyser[1] has carried out a series of experiments on rabbits to test some of the various theories that have from time to time been put forward to account for the formation of calculi in the urinary tract. He has produced evidence against the view that a diet rich in calcium is a predisposing factor in stone formation, by feeding rabbits with massive doses of calcium oxalate, chloride, lactate, and phosphate. Healthy rabbits were used and also some in which a mild degree of toxic nephritis had previously been produced by the administration of small doses of oxalic acid, cantharides, chloroform, and mercuric chloride. In no case was there any demonstrable increase in the crystalline content of the urine nor was there any concrement formation. Similarly, the presence of an organic foreign body in the pelvis of the kidney as a predisposing cause was disproved by placing small pieces of fascia and muscle under sterile conditions into that region. In only one case, and that in which bacterial infection had taken place, was there any deposit round the foreign body. One substance was, however, found to produce stones when given orally—namely, oxamide (the diamide of oxalic acid $\begin{matrix}\mathrm{CONH_2}\\ | \\ \mathrm{CONH_2}\end{matrix}$). When rabbits were fed on this compound, 75 per cent. revealed a deposit of gravel and 50 per cent. stone formation, although cultures of the organs were repeatedly sterile. The amount of oxamide found in the urinary tract after death did not appear to be influenced by the reaction of the urine, variations in dosage, and duration of the feeding within wide limits. The oxamide in the urine consisted of pigmented crystals in the form of crosses, simple and rough, squares and spheres, the latter tending to fuse to form small concrements and stones. Crystals of oxamide produced synthetically by treating oxalic ester with ammonia were found to have the form of translucent, colourless, fissured rhomboids, some with roughened and split ends. If these were dissolved in urine, and re-precipitated by heating, the process being repeated several times, crystals were produced exactly similar to those obtained from the urine of oxamide-fed rabbits, and if the latter crystals were dissolved and passed through heated charcoal, the pigment was extracted, and forms resulted exactly similar to those produced synthetically. Thus it would appear that "the urinary colloids act on the oxamide crystals so as to transform them into fusing forms." It is probable that the colloids in the urine normally keep the water-insoluble crystals (urates, oxalates, &c.) in solution, but if any foreign crystalloid is present, such as oxamide, there is no mechanism to keep its crystals separate as morphological units, nor to keep it in solution, and therefore it is precipitated by the normal colloid so as to produce fusion and concrement formation. Further, the presence of an abnormal colloid or any interference with the normal colloids in the urine may cause the normal crystalloids to be precipitated. Although the most likely source of an abnormal colloid seems from clinical and experimental data to be inflammatory exudates, the fact that in pyelitis and nephritis stones are uncommon proves that not every inflammatory exudate produces stone, nor does every abnormal colloid, and therefore it is possible that stone-forming colloid and colloid-forming bacteria are specific. The experiments quoted above also show that an abnormal crystalloid may be precipitated without the presence of infection. In a further series of oxamide-fed rabbits it was demonstrated that roughening of the renal pelvis resulted in a greater deposit of oxamide on that side, and that slight constriction of the ureter brought about stone formation in every case, whereas, in the absence of constriction, stones were formed in only 50 per cent. Where pieces of fascia or muscle were placed in the pelvis, stone formation was consistently noted round such a nucleus. Hence, it was concluded that "duplication of surfaces, diverticula, stasis, hydronephrosis, and nuclei, while not the cause of stone, greatly enhance the chances of retention of fusing crystals when these are present, and in this manner foster the formation of larger stones." Clinically, therefore, stones may be caused by the pouring out of abnormal colloids from an infected kidney, these colloids causing precipitation of crystalloids and their fusion. This conception explains why removal of the infected kidney is seldom attended by a recurrence of stones, and why recurrence in an infected bladder is so common. It also lends support to the views held by many authors that any focus of infection, or any lowering of the resistance in the individual may be a predisposing factor in the formation of calculi.

HYDROGEN CYANIDE AS A DISINFESTOR OF SHIPS.

Dr. P. G. Stock's paper, read before the Section of Epidemiology of the Royal Society of Medicine on Nov. 23rd, dealing with the use of hydrogen cyanide and allied substances as disinfestors, has an important bearing on international preventive medicine. In the account of two recent cases of fatal poisoning by hydrocyanic gas occurring during the deratisation of a liner at Southampton, Dr. Seager Thomas[1] indicated the early publication of a report by the Ministry of Health dealing with this method of fumigation. Full investigation into the risks as balanced by the advantages of hydrogen cyanide as a fumigant has not yet been completed, but the Ministry have now issued a preliminary report,[2] embodying the knowledge and experience so far acquired concerning the gas. In the first place it is pointed out that hydrogen cyanide is not a disinfectant, and is not used for ordinary purposes of disinfection of houses or clothes—e.g., after infectious fevers. It is, however, a powerful agent for the destruction of animal life, and of insect pests generally. The fumigant hitherto favoured in this country has been sulphur dioxide, but the advantages claimed for the use of hydrogen cyanide, for the destruction of vermin on board ship, are, apart from the time occupied in the process, the absence of danger from fire and of damage to metal work, paint, fittings, and cargo; it is also supposed to be less expensive in practice. The outstanding disadvantage of its employment is that every stage of the process is accompanied by danger to the lives of all persons engaged on the work of fumigation. The report, however, shows that this danger can be reduced to a minimum provided adequate precautions are taken, and strictly maintained throughout the whole process. Further, the fatal accidents which have occurred in this and other countries are held to be due mainly to lack of precaution or to carelessness of the operators.

The steps employed in the fumigation of a ship can be divided into three stages: (1) The ship is inspected and the details of the fumigation planned. All openings are then closed, and the generating plant placed in position. (2) The plant is charged and the gas generated, when the vessel is left under fumigation. (3) The ship is opened up and allowed to ventilate, tests being made to determine when she is free from gas. To prevent accidents two precautions are necessary: (*a*) The employment of only a trained personnel, and (*b*) the use of effective respirators. Should an accident occur, it appears that artificial respiration employed as soon as possible and without waiting for other means of assistance affords the best prospect of success The methods employed in generating the gas were detailed in these columns some months ago.[3] As hydrogen cyanide gives no warning symptoms in sublethal concentrations, attempts have been made to combine it with some lacrymatory substance. Such a mixture, known as "Cyklon," has been used in Holland, but it is still on trial. Liquid hydrogen cyanide contained in steel cylinders has been employed, but, after a rise of atmospheric pressure, the cylinders have been known to burst. The dangers of such an accident are obvious.

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[1] Papers from the Mayo Foundation, ii., 1921–22.

[1] THE LANCET, 1923, i., 1210.

[2] Preliminary Report on the Use of Hydrogen Cyanide for Fumigation Purposes. By Dr. P. G. Stock and Mr. G. W. Monier Williams, Ph.D. London: H.M. Stationery Office. 1923. 2*s.* 6*d.*

In his summary of the report Sir George Newman states: "There is no doubt either as to the efficiency of fumigation by hydrogen cyanide for the destruction of rats and vermin, or as to its danger. It must, I am afraid, be considered a hazardous occupation, and the question arises whether the application of this method of disinfection should be specially restricted by licence." The enormous wastage to health and to merchandise alike caused by vermin renders imperative the most stringent measures for their destruction. Hydrogen cyanide is efficacious, but it is admittedly dangerous. Perhaps the solution of the problem lies along the lines of improved ship construction which would render rat harbourage impossible and destruction unnecessary.

THE OUTBREAK OF DYSENTERY IN DEVONSHIRE IN 1922.

A REPORT[4] has been issued by the Ministry of Health upon the outbreak of gastro-enteritis which occurred at Lynton, in Devonshire, during October, 1922. It appears that the first cases were noted as early as June of that year, after which cases of what are now presumed to have been mild bacillary dysentery cropped up at regular intervals till the date of the main outbreak. Lynton is situated 600 feet above sea-level, occupies an area of some 7000 acres, and has a population of 1770. The outbreak was confined solely to the town. Inquiry directed to the sanitary condition of the district failed to show any evidence that the water-supply or the methods of sewage disposal could be held responsible for the outbreak. In the course of the investigation the milk from a single farm situated two miles from Lynton came under suspicion, for, with two exceptions, every sufferer in the outbreak had consumed milk obtained from this farm, and even as regards the two excepted cases it could not be positively stated that they had not partaken of this milk. The dairy-farmer proved to be an ex-officer who had suffered from an attack of dysentery in the East in December, 1917, and it appeared that he had taken an active part in the dairying of the milk, and assisted in its distribution to his customers. The discovery of this interesting circumstance led to the despatch of Mr. Bruce White to make bacteriological investigations on the spot. The actual discovery of Flexner's dysentery bacillus was made in the mucoid stools of a child aged 6 years, the son of the foreman residing on the farm which was under suspicion. From the next case that occurred a culture of Shiga's bacillus was obtained. The blood of the owner of the farm was found to agglutinate Flexner's bacillus in high dilution, while from the stools of the foreman Shiga's bacillus was obtained. After this 18 cases of bacillary dysentery were noted in 11 households, of which 13 occurred in children. The chief interest in this small outbreak lies in the completeness with which it has been possible to coördinate the epidemiological and bacteriological findings. These leave little doubt that the infection was spread through the agency of milk, and that the source of infection was an active carrier of dysentery bacilli, who proved to be the farm foreman. The main points of scientific note are the proof that milk may form a medium for the dispersal of dysentery bacilli, and that a carrier of the disease may remain infective for a period of five years.

OCULAR INJURIES.

AN article in the September number of the *American Journal of Ophthalmology* records in outline 28 cases of ocular injury, direct or indirect, with sketches showing the fundus conditions. In some cases diagrams are appended to indicate the exact points at which the injuries were inflicted. The result is to confirm, in the main, the "laws" formulated by Félix Lagrange, the most remarkable of which are: 1. The commotion of air by the explosion of a shell at a distance may injure the eye so severely that the inner membranes are lacerated. These lesions are located generally at the posterior pole of the eye, and are sometimes very extensive. When the eye is shaken the uveal membrane is the first to give way, so that choroidal ruptures are common from this cause. 2. When the missile passes above the orbit it produces fracture of the orbital vault; the sensory and motor nerves of the orbit may be involved, but the eyeball itself is uninjured. 3. When the missile travels through the face below the eyeball, without fracturing the orbit, it produces lesions by concussion involving the eye at the level of the macula lutea. It is the most common cause of impairment or loss of central visual acuity. The lesions are the result of the concussion transmitted to the contents of the orbit by the pterygo-maxillary fossa and spheno-maxillary fissure. Among the cases of which diagrams are given are included hæmorrhages, hole at the macula, ruptured choroid, and central retino-choroiditis, sometimes slight, at others very extensive.

THE "BLACK JACK" SIGNATURE BOOKS.

AN interesting addition has just been made to the library of the Royal College of Surgeons in the shape of three volumes of Signature Books from the old "Black Jack" public house, which stood, before a process of demolition began in about the year 1902, near the old King's College Hospital. The donor, Dr. Albert E. Jones, of Crickhowell, purchased these three volumes in the "Old Curiosity Shop," which stands nearly opposite the site of the Black Jack. A fourth volume has not so far been traced. The signatures are those of young medical men, who had just "passed the College," in the phrase of a past generation, or, in other words, had just qualified as Members of the Royal College of Surgeons of England. Naturally enough, considering where and on what occasion they were written—though the word "naturally" is a sad comment on the times—the handwritings often betray traces of alcoholic exhilaration, and in many cases sprawl exceedingly. Several newly-fledged Members of the College have taken a whole page to themselves; others indulge in witticisms at the expense of fellow-signatories. The earliest autograph in Volume I. is that of Thomas Webb Fryer, of Bristol, who passed the College on Feb. 4th, 1854, and practised for many years at Grampound in Cornwall. The last signature is in April, 1892, and is that of a gentleman still in practice in London. The later autographs, be it said, are decorous enough, and are in respectable contrast to the smudged and vinous ones of the fifties and sixties. The Bob Sawyer tradition may be said to have begun to pass into oblivion while the Signature Books were still in existence. As early as 1871 we find it referred to as a thing of the past by Dr. William Fairlie Clarke, M.A. Oxon., F.R.C.S., whose name is not in these curious old "matriculas." "Time was—and that not very long ago,—" he wrote, "when the name of a medical student was a synonym for coarseness and vulgarity, if not for profanity and licentiousness. But happily that time has passed away, we may hope for ever." It must have been a coarse and profane fellow who drew the caricature of the President of the Royal College of Surgeons, Edward Stanley, in 1857, but as a matter of fact he thus left on record, in Vol. I. of these quaint old books, the only portrait of Stanley, apart from the bust by Lough, which is now known to us. In the recent Gardner sale water-colours by J. P. Emslie and J. I. Wilson, portraying the ancient interior and mean-looking exterior of the "Old Black Jack," fetched a high price.

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[3] THE LANCET, 1923, i., 1223.

[4] Report on an Outbreak of Dysentery in the Urban District of Lynton, Devon. By George C. Hancock, C.B.E., and P. Bruce White, B.Sc. Reports on Public Health and Medical Subjects, No. 20. H.M. Stationery Office. 4*d*.

THE ÆTIOLOGY OF WARTS AND PAPILLOMATA.

At the University Hospital for Diseases of the Nose, Throat, and Ears in Vienna, Dr. E. V. Ullmann has recently been carrying out some interesting investigations into the ætiology of warts and papillomata. According to his report, which is published in *Acta Oto-Laryngologica* (Vol. V., Fasc. 3, 1923), the starting-point of his investigations was a case of papilloma of the larynx in a 6-year-old boy. Early in June, 1921, some of this growth was removed, and after it had been washed in saline solution it was crushed in a mortar into an opaque milky fluid which was inoculated into abrasions in Dr. Ullmann's left arm, and also into abrasions in the abdominal wall and hard palate of two dogs. The entrance to the vagina of one of these dogs was also inoculated, the vagina being sewn up to prevent the dog licking it. By the middle of September small flat warts, resembling the initial stage of rapidly growing herpes tonsurans, had developed on Dr. Ullmann's arm. They grew quickly, developing the appearance of a pedunculated many-branched papilloma. At this stage the site of inoculation in the vagina of the dog showed several small warts of a reddish colour. After five weeks' further growth they presented the appearance of a pedunculated papilloma. At the time the papilloma was removed from the larynx of the child, his upper lip was slightly injured, and three and a half months later several small flat warts developed on the upper lip, spreading thence over the whole of the face. It was noteworthy that, while the secondary growths on Dr. Ullmann's arm and in the vagina of the dog were pedunculated, those on the child's face were flat warts. Dr. Ullmann removed a small piece of the papilloma from his upper arm on Dec. 3rd, 1921, and inoculated the upper arm of a colleague. Seven days later the reaction had passed off, but on Jan. 8th six small groups of nodules appeared at the site of inoculation, growing very rapidly and extending beyond the inoculated area. After six weeks the growth of these tumours was so luxuriant that they had to be cut away. This experiment showed that the passage of the virus had considerably decreased its incubation period and favoured its rate of growth, observations suggesting that the laryngeal papilloma is an infectious inflammatory disease. Dr. Ullmann has also passed an extract of a papilloma through a bacterial filter, and has succeeded in cultivating warts on his skin after rubbing the filtrate into abrasions. These and various other investigations have led him to think that the laryngeal papilloma is the result of an inflammatory reaction caused by a filter-passing virus. If his findings are confirmed, the treatment of laryngeal papilloma and allied diseases will have been put on a more rational footing than heretofore. It is noteworthy in this connexion that warts on the hands are particularly common in children suffering from laryngeal papilloma.

THE PROPHYLAXIS OF CONGENITAL SYPHILIS.

Prof. Almkvist, of the Karolinska Institute in Stockholm, has lately published statistics[1] with regard to congenital syphilis, which give a clear lead as to the prevention of this disease. He has classified his material according as: (1) Syphilitic mothers were not given specific treatment before confinement, (2) were given it before but not during pregnancy, (3) were given it only during pregnancy, or (4) were given it both before and during pregnancy. Of the 28 women in the first class, as many as 27 gave birth to infants who, sooner or later, showed signs of syphilis. Of the 26 women in the third class, there was not one whose infant showed signs of congenital syphilis. In the remaining classes there were too few persons for a statistical analysis to be of importance, but the upshot of a study of a total of 67 cases in which the mother or infant, or both, showed signs of syphilis was unmistakably obvious. The campaign against congenital syphilis should be primarily prophylactic, for to start treatment after the birth of a syphilitic infant is to miss the best opportunity. So far Prof. Almkvist will assuredly find every authority in agreement with him. But when he discusses the course to pursue when a child is born to a syphilitic mother, given skilled specific treatment throughout pregnancy, he is on more debatable ground. According to some authorities it should be assumed that the new-born infant may not have escaped infection; it should be "given the benefit of the doubt" and treated as if congenital syphilis had been found. Prof. Almkvist condemns this course, comparing it with that of the physician who prescribes specific treatment for an adult who has been exposed to infection, but has shown neither clinical nor serological signs of syphilis. Even when a syphilitic mother has not been given specific treatment, Prof. Almkvist prefers to withhold specific treatment for her infant till signs of syphilis have appeared. To give specific treatment in such a case is, he argues, unscientific. Till his advice is followed, little can be learnt as to the period in the life of an infant with congenital syphilis when Wassermann's reaction becomes positive. For lack of such knowledge we do not yet know for how long an infant must be kept under clinical and serological observation before it can be stated with certainty that the infant has escaped congenital syphilis. Prof. Almkvist abides by his principle even in the case of the mother who gives birth to a syphilitic infant without showing signs of syphilis in her own body. There were five such cases in his series, and he maintains that these women should be kept under observation and not given specific treatment till it is proved that they are suffering from syphilis. In many of his cases the expectant mothers were ignorant of their infection, and he urges every practitioner confronted with a case of pregnancy to take clinical and serological steps to assure himself that the prospective mother is not syphilitic. While this advice may be sound it is hardly practicable.

THE PATHOLOGY OF TORTICOLLIS.

As long ago as 1830, Stromeyer taught that injury to the sterno-cleido-mastoid muscle during birth gave rise to a hæmatoma in this muscle which subsequently atrophied, the mechanism of torticollis being more or less mechanical. In the "nineties" it was still assumed that this condition began with a mechanical injury to the muscle during birth, but it was thought that the hypothetical hæmatoma developing during labour subsequently became infected, retraction and atrophy of the muscle being due to a fibrous myositis of microbic origin. Recent investigations by Prof. Ali Krogius,[2] of Helsingfors, give support to the view that this condition is a degenerative process comparable with that of Dupuytren's contraction to the pathogenesis of which

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[1] Acta Med. Scand., 1923, lix., 1.

[2] Finska Läkaresällskapets Handlingar, September–October, 1923.

Prof. Krogius has also contributed much important research. He has carried out microscopic examinations of seven cases of torticollis, the ages of the patients being 8 months and 14, 16, 17, 19, 20, and 24 years respectively. In two cases the torticollis did not begin to develop till the patients had reached the ages of 5 and 15 years respectively, and in two other cases the condition had not been noticed till more than a year after birth. A microscopic examination was also made of a muscle that had undergone ischæmic contracture in connexion with a fracture of the humerus, and also of the rudimentary interosseous muscles of a new-born calf. The degenerative changes already proceeding in these muscles were also found in the sterno-mastoid muscles, but not in the muscle which had undergone ischæmic paralysis and atrophy as a result of a fracture. In three of the adolescent patients these degenerative changes seemed to have come to a certain standstill, the muscles having been converted over an extensive area into firm, fibrous tissue. Only here and there, at the junction of muscle with fibrous tissue, could a soft connective tissue be seen in which a few necrotic fragments of muscle were imprisoned. In all the other cases the process still seemed to be in activity, islands of degenerating muscle being surrounded by actively proliferating connective tissue. This condition was found even in the eight-months old patient, and it was not least marked in the oldest patient. These changes were the same whether the torticollis had begun early or comparatively late in life. Prof. Krogius dismisses as improbable that this formation of connective tissue is merely a secondary phenomenon following destruction of muscle, for he has seen connective tissue proliferation starting in the perimysium at a stage when the muscle cells still completely retained their normal structure. In further support of his views he notes that torticollis may be associated with other deformities of endogenous origin such as hare-lip, congenital absence of muscles, syndactylism, polydactylism, and malformations of the reproductive system. The fact that the anterior portion of the trapezius not infrequently shows the same changes as those found in the sterno-mastoid is also a reason for regarding this condition as a developmental anomaly.

THE dinner in celebration of THE LANCET Centenary is to be held next Thursday, 7.30 P.M. for 8 P.M., at the Victoria Hotel, Northumberland-avenue, Sir Donald MacAlister, President of the General Medical Council, presiding.

Prof. Strandberg, of Copenhagen, is to deliver at the Royal Society of Medicine on Monday, Dec. 3rd, at 5 P.M., a lecture on the treatment of tuberculosis of the nose and throat by means of light baths.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, Nov. 27th, when Sir Donald MacAlister, the President, will deliver an address. The Council will continue to sit from day to day until the termination of their business.

RONTGEN SOCIETY.—A general meeting will be held on Tuesday, Dec. 4th, at 8.15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London, W., when a paper on Modern Radiographical Technique will be read by Dr. L. G. Heilbron, of Amsterdam.

In order to commemorate the work of the late Prof. Röntgen, the Council of the Society, at a meeting held on Oct. 25th, agreed that an annual award of £10 (or the equivalent in books or apparatus, at the option of the recipient) shall be presented to that member of the Rontgen Society whose contributions during the session, relating to the science or practice of medical or general radiology are, in the opinion of the Council, of sufficient distinction. In the event of two or more collaborating, the award shall be shared equally between them. The award has reference to papers or demonstrations, read or shown for the first time and before the Society, relating to radiology in all its aspects, and will not be made if, in the opinion of the Council, no contribution of sufficient merit has been forthcoming during the session.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLVI.—TREATMENT OF VARICOSE VEINS.

VARICOSE veins is a condition of considerable importance partly on account of its frequency and partly on account of the severe and disabling complications, such as ulceration, thrombosis, and chronic œdema, which are likely to occur in late stages of the disease. In most of these advanced cases curative treatment is impossible and palliative measures afford only a limited degree of relief. Our aim should, therefore, be to treat these cases in the earlier stages, while the patients are young and the trouble localised.

Our knowledge of the cause of varicose veins is not altogether satisfactory. The trouble is common in all classes, affecting both men and women, and in those following both active and sedentary occupations. It is generally agreed that the essential factor is an increase of pressure in the veins occasionally due to some easily recognised obstruction to the flow of blood. Such are pregnancy, pressure by tumours, abnormal communications between arteries and veins, and occasionally thrombosis of the femoral vein or a fracture of the pelvis. In another group varicosity is vaguely attributed to some congenital cause; rarely it is part of a definite angeioma. In another numerous group the trouble is attributed to an habitually overloaded colon, "heart disease," and occupation. It is necessary to consider where and how the obstruction occurs, in order that it may be treated before the valves become incompetent.

I believe, for reasons I have set out in detail elsewhere,[1] that in a considerable proportion of cases, especially where the patient follows an occupation requiring prolonged standing, the real cause of the trouble is an obstruction to the flow of blood near the termination of the internal saphenous vein, where it passes through the saphenous opening, crossing the well-defined cornu of the falciform edge, and leaves the subcutaneous tissues to join the more deeply placed and better supported femoral vein. This is a relationship where some additional factor may easily produce a slight but definite degree of obstruction which, acting over long periods, may produce far-reaching results. This additional factor is, I suggest, increase in the tension of the fascia lata. In the sitting or recumbent positions the fascia lata is relaxed. In the erect position it is tense. If the fascia lata is tense so also must be the falciform edge with its superior and inferior cornua, the latter between the superficial and deep venous trunks. The obstruction thus produced need not be complete; a slight degree of interference acting over a long time will be sufficient to overfill the veins, to cause thickening and dilatation and eventually varicosity. A vicious circle will also be started, for the overfull vein will be heavier, and this will tend to cause a dragging which will aggravate and increase the obstruction when the fascia is tense. The effects of the obstruction need not appear in the upper part of the vein; indeed, one would expect the effect of the pressure to extend downwards beyond the actual obstruction and for the effects to become manifest first in the distant tributaries. There is another possible cause of obstruction at the termination of the internal saphenous vein, where it is joined by the superficial epigastric, the superficial circumflex iliac, and the external pudic veins. Though usually regarded as unimportant, these veins are often surprisingly large, and the flow of blood in them, being from above downwards, is in direct opposition to the flow of blood in the internal saphenous. This cause of obstruction, though probably negligible in the sitting or recumbent position, may be of considerable importance in the erect position when the fascia lata is tense.

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[1] Guy's Hospital Reports, vol. iii., fourth series, No. 2.

I do not wish to suggest that this is the only cause of varicose veins. I have no doubt that the others mentioned do exist, that they are often of importance, and that they must be taken into account when deciding upon treatment. It is possible, too, that obstruction may sometimes occur in a somewhat similar fashion in the external saphenous vein where it pierces the deep fascia, or in other situations where there are communications between deep and superficial veins.

Operative Treatment.

I have long thought that in the operative treatment of varicose veins it is a wrong principle to excise or obliterate the main trunks of venous return, especially the internal saphenous. The blood has to return from the superficial tissues of the leg somehow, and, if the main trunk is removed a great strain must of necessity be thrown on the smaller vessels, with the result that they become varicose. Even though all the affected veins are excised, only too often fresh veins will be found later to be varicose, sometimes actually beneath the operation scars, while occasionally a large fresh channel will be found to have developed in the course of the excised internal saphenous.

Trendelenburg's operation, in which an inch or two of the internal saphenous is excised immediately below the saphenous opening, is now, I believe, less frequently employed than formerly. It is indicated only where there is definite evidence of a long column of blood, unsupported by valves, extending from the abdomen to the lower part of the leg. In such cases the advantage to be derived by relief from this extensive back pressure may outweigh the disadvantages following on obliteration of the main channel of venous return. Trendelenburg's operation is usually combined with removal of the diseased veins; and it may be taken as a generally accepted fact that if a vein is so seriously affected that operative treatment is required, excision by one of the methods in common use is the only effective way of dealing with it, though this should, if possible, be combined with some measures to remove the cause.

The operative treatment of varicose veins should thus have three objects: (1) To excise those veins or groups of veins which are causing symptoms; (2) to remove the cause of the trouble; and (3) to carry out the above and at the same time preserve the internal saphenous, the main channel for the drainage of the superficial veins of the lower extremity.

Indications for Operative Treatment.

Operative treatment must not be carried out indiscriminately, but only on carefully selected cases, generally young healthy adults. In female patients the pelvic organs must be healthy and the possibility of pregnancy must be remembered. The most suitable cases are those where the trouble is localised to one or more veins or groups of veins. Chronic swelling of the leg, due to solid œdema, with probable blocking of the deep veins, is a contra-indication.

There are several well-known methods of excising the diseased veins. Personally I prefer to dissect out the veins through fairly large incisions rather than to employ methods involving the evulsion of long portions of vein through small incisions. In those cases where it is considered that the varicosity is caused by obstruction at the saphenous opening the plan which I have adopted is the following:—

A New Operation.

The course of the internal saphenous vein is carefully verified. Probably the thickened vein can be felt, but to avoid any uncertainty it should be marked out beforehand. The hip being slightly everted an incision about 4 or 5 inches in length is made just to one side of the vein which is cleared, first to the inner and then to the outer side, so that the deep fascia is exposed for the whole length of the incision. By a little dissection the termination of the vein and the margins of the saphenous opening are defined. The superficial tributaries are then identified and each is divided between two ligatures. The deep aspect of the saphenous vein is now separated from the deep fascia; a director is slipped under the inferior cornu of the saphenous opening and the fascia lata is divided along this. In early cases, where the vein is simply overfull, division of the fascia for about an inch is all that is required, and the wound may then be closed. In more advanced cases, where the wall of the vein is thickened, the fascia may be divided to the lower end of the wound—i.e., for a distance of 4 or 5 inches. The margins of the incision in the fascia are dissected slightly back and the vein is displaced from the superficial tissues into the bed which is thus prepared for it. The fascia is now sewn over the vein by a continuous suture of fine catgut which commences above at the saphenous opening and extends to the lower end of the incision in the fascia, care being taken to leave the lower half inch or so in order to avoid constriction of the vein. In these manipulations the vein is treated with the utmost gentleness. It should not be dissected too bare; indeed, it is a good thing to see a little of the superficial fat adherent to it. It should not be seized by dissecting forceps, but may be conveniently manipulated by using an aneurysm needle as a retractor. Small tributaries may be ligatured and divided, but it is desirable to preserve a large branch on the outer side and probably a smaller one on the inner side, each situated a small distance below the saphenous opening. When suturing the fascia over the vein a small lateral slit may be made in the fascial margin in order to avoid constriction as they join the main trunk. As a general rule, the upper few inches of the vein only need be embedded, and in a great many cases simple division of the margin of the saphenous opening is all that is called for.

When the lower half of the internal saphenous in the thigh is tortuous and varicose the affected portion should be excised, and the upper half may then be treated in the way described; it is important under these circumstances to preserve the lateral tributaries. When the whole vein is varicose transplantation beneath the fascia is contra-indicated; nor should tortuous varicose veins be so treated. In such cases, if operation is decided upon, excision of the vein should be carried out, or Trendelenburg's operation; in any case the prognosis as regards recurrence is not hopeful.

Special Indications for this Operation.

This operation should not be performed indiscriminately, but only on carefully selected cases. In addition to the well-recognised rules for excision the following special indications must be present.

1. The patient must be a young adult, or, if of middle age, the general condition must be satisfactory.
2. The varicosity must affect the lower part of the internal saphenous and its tributaries. Both legs may be affected, but whether unilateral or bilateral the disease must not be generalised.
3. Other causes for the condition must be absent, and there must be some evidence to suggest that there is obstruction at the saphenous opening. This is usually indicated by a thickened and dilated condition of the saphenous, which, however, is not tortuous and varicose. The over-distended vein will readily be felt and probably seen when the patient is examined in the erect position. This I believe to be an early condition, in which excision and removal of the cause offers a good prospect of cure; if it is allowed to extend the condition will become unsuitable for operative treatment. I have performed the operation in about 20 cases, and I believe that the results are better than when excision is practised alone.

Non-Operative Treatment.

In cases unsuitable for operation some form of support, either an elastic stocking or a bandage, will be necessary, in addition to any hygienic or general treatment which may be indicated. Elastic stockings should be made to measure and require frequent renewal. On this account bandages, either elastic crepe or elastic web, are more often employed. The bandage should be put on in the recumbent position, the leg having been raised so as to empty the veins as much as possible before its application.

PHILIP TURNER, M.S. Lond., F.R.C.S. Eng.,
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Public Health Services.

THE WORKING OF THE LEICESTER PUBLIC MEDICAL SERVICE.

THE ability of doctors to run a public medical service on a large scale has been the subject of recent discussion, but the acceptance by the insurance medical service of the Minister of Health's offer renders further discussion at present largely of an academic nature. The question of the extension of medical benefit to the wives and children of insured persons is, however, likely to be raised by the Royal Commission when it meets. Such a service on a small scale, outside the present range of the National Insurance Acts, is now actually in being, and we are indebted for the following description of the Leicester Public Medical Service to Dr. W. Moffat Holmes, honorary secretary, Leicester Subdivision of the Union of Medical Practitioners and Leicester Public Health Service. Dr. Holmes says:—

The Leicester Public Medical Service is worked under the ægis of the Leicester Subdivision of the Union of Medical Practitioners, so that it is advisable to say something also about the parent body, which is a registered trades union and of which one of the objects is "the promotion of an equitable system or systems of medical service regulating the medical attendance and treatment by members of the Union and the provision by them of medicines for persons unable to pay the ordinary medical charges in the usual manner." In accordance with the foregoing quotation, the Leicester Public Medical Service was inaugurated in January, 1913. There are many advantages accruing to members of the Union, and membership thereof gives to a practitioner the right to have his name entered on the panel of medical practitioners prepared to practise in connexion with the Public Medical Service.

When the work of the Leicester Provident Dispensary came to an end on the introduction of the National Health Insurance Act a large section of the population of Leicester (chiefly women and children) who were members of that institution, unable in most instances to pay ordinary medical fees, were left unprovided for in the matter of medical attendance. In these circumstances the medical profession in Leicester introduced the Public Medical Service, through which dependents of insured persons, and others, are enabled to obtain medical attendance when necessary, by means of small periodical payments.

1. *Subscriptions.*—Uninsured persons over 14 years of age, entered alone on card, pay 3*d.* per week, but a man and wife pay 5*d.* per week. On cards where a child or children under 14 years of age are entered on a card with an adult, the adult pays 2½*d.* per week, the first child 2*d.* per week, the second child 1½*d.* per week, and the third and fourth 1*d.* each per week, not more than four children being charged for in one family. On cards where no adult is entered the first child pays 2½*d.* per week, the second 1½*d.* per week, and the third and fourth 1*d.* each per week. The entrance fee is 1*s.*, the card costs 3*d.* Persons in receipt of the Old Age Pension, or receiving assistance from the guardians, are charged 1*d.* per week less than the ordinary rates. This payment entitles them after the expiration of one month from date of application for membership to ordinary medical attendance and medicine, dressings, &c., and if they are unable to go to the doctor's surgery or consulting room, the doctor visits them at their own homes. Patients desiring to be visited at their own homes must send their messages to the doctor's surgery before 10 o'clock in the morning to ensure attendance on that day, otherwise they are liable to be charged a fee. Night calls—i.e., visits made between 8 P.M. and 9 A.M. in response to calls received within these hours—are also charged for. This arrangement was made chiefly to deter subscribers from sending for the doctor unnecessarily, with the result that, comparatively speaking, very few night calls are received. Persons actually ill at time of application for membership pay a sick fee of 10*s.* in addition to the ordinary rates, which entitles them to immediate attendance. The weekly subscriptions have been fixed at these low rates because the subscribers receive no aid from the State, and because the medical men are desirous of continuing the humane and charitable work associated with the profession in regard to deserving cases. Moreover, it was found expedient to arrange a graduated scale of contributions in cases where there are a number of children in a family, because the experience in Leicester has proved that it is, generally speaking, the lowest paid labouring classes who have the largest families, and who are least able to pay. In other circumstances the subscriptions would be higher.

2. *Control.*—The Public Medical Service in Leicester is under the control of a board of management consisting entirely of doctors, elected annually, with various committees. All the doctors in Leicester are associated with the Public Medical Service in either an honorary or an acting capacity.

3. *Premises, Staff, &c.*—There is a central dispensary and offices, and eight branch dispensaries in various parts of the town. At the central dispensary, and at five of the branch dispensaries, there are consulting rooms. The doctors do not dispense, prescriptions being made up at the central dispensary and branches by qualified dispensers. The staff consists of a manager, chief dispenser, dispensers, collectors, clerks, porter, and caretakers. The profession in Leicester have been very fortunate in having, from the inception of the scheme, the services of the present manager, Mr. T. W. Lawrence, whose administrative ability and knowledge of medical matters generally have been of inestimable value.

4. *Drugs.*—The drugs, chemicals, &c., required at the branch dispensaries are supplied from the central dispensary, to which is attached a steam laboratory. A pharmacopœia containing over 150 formulæ, published by the Public Medical Service, facilitates both prescribing and dispensing, and is recognised under the National Health Insurance Act.

5. *Change of Doctor.*—Members have choice of doctor from a panel of more than 60 doctors, and are allowed to change doctor quarterly, or more frequently in the event of removal to another part of the town. All members are able to consult the doctor of their choice at his surgery, and in several cases at the consulting rooms of the Public Medical Service in addition. Each doctor has submitted to him the names and addresses of applicants for admission to the Service who desire to be placed on his list, and he has the right to accept or refuse.

6. *Specialist Treatment.*—Members have the advantage of specialist treatment for eye, nose, ear, and throat on payment of very moderate fees, and dental treatment is also arranged for.

7. *Friendly Society Arrangements.*—As all the societies in Leicester making arrangements on contract lines for medical treatment of their uninsured members do so through the Public Medical Service, it is possible to offer a choice of arrangements to the members. The large majority favour the arrangement whereby medicines can be obtained at the central dispensary and branches. Members of another section can get their prescriptions dispensed at the pharmacists'. Members of the friendly societies can obtain their medicines at the dispensary of the Medical Association attached to their societies. The members of the various sections of the Public Medical Service have free choice from the same panel of doctors.

8. *Complaints Committee.*—At the inception of the Service in Leicester a complaints committee was set up, consisting of four representatives of the friendly societies, four representatives of the medical profession, of whom two should not be "acting members" of the Service, with an independent chairman, to investigate any complaints that might be made by members. Were any proof needed of the satisfactory nature of the attendance given to members of the Public Medical Service, it is found in the fact that the committee has never had occasion to meet.

9. *Philanthropic Arrangements.*—The Public Medical Service gives free medical treatment to members of the Institution for the Welfare of the Blind, the Wycliffe Society, the Cripples' Guild, and the Home for Feeble-Minded Girls.

10. *Dispensing for Outdoor Sick Poor.*—The Public Medical Service has since Jan. 1st, 1913, by arrangement with the board of guardians, approved by the Local Government Board, dispensed the necessary medicines for the outdoor sick poor of Leicester, and the satisfactory nature of the arrangement is proved by the fact that not a single complaint has been made by the guardians, and that the Local Government Board has approved of the arrangement being renewed year by year.

11. *School Clinic.*—The Public Medical Service, by arrangement with the Education Committee, provides accommodation for the dental and other treatment of school-children.

12. *Regional Medical Officer.*—Accommodation is also provided at the central dispensary for the regional medical officer, by arrangement with the Ministry of Health.

It will be readily perceived that the services rendered, and the accommodation provided, as set forth in the three preceding paragraphs, are a source of income.

13. *Statistics.*—The successful nature of the work as a whole is indicated by the following figures: the number of uninsured

members exceeds 40,000; prescriptions dispensed annually, number about 195,000. This result has been achieved on purely voluntary lines, no canvassing by collectors being allowed. The collectors are paid by salary and have no commission.

14. *Hospital Accommodation.*—Adjacent to the central dispensary, and under its own separate management, is the beautifully fitted Faire Hospital of three wards, each containing nine beds. This hospital, which is a model of its kind, takes its name from Mr. John E. Faire, J.P., of this city, who was primarily responsible for the hospital being built, and has done such great work for it since its inception. In this hospital, largely owing to Mr. Faire's generosity and foresight, Leicester possesses a very valuable institution. There are two operating theatres, electric lifts, &c., and medical and surgical cases are received at certain fixed charges for nursing and maintenance. Patients can be attended by their own doctor, and the fee for operation or attendance is mutually arranged between doctor and patient. Also adjoining the central dispensary is the Leicester and Leicestershire Maternity Hospital. The Public Medical Service supplies to both hospitals drugs, chemicals, dressings, &c., and to the latter steam for heating. The work of the Leicester Public Medical Service is quite distinct from the medical service of the National Health Insurance Act.

The Insurance Committee has no connexion whatever with the Public Medical Service, *nor is there lay control of any kind.* Furthermore, the following points in connexion with the work of the P.M.S. may be emphasised: (*a*) No outside interference; (*b*) no records to be kept; (*c*) no irksome regulations in connexion with certificates or any other matter.

The organisation of the Public Medical Service in Leicester is capable of expansion to almost any extent, without any violent upheaval, and should the necessity arise for making other provision for medical treatment of the persons who now receive their medical benefit under the National Health Insurance Act, the Public Medical Service could cope with the situation quite readily. Moreover, the Service is a satisfactory one and acceptable to the subscribers generally. Indeed, it is spoken very highly of, not only by the patients, but by influential men connected with the friendly societies in Leicester, and by independent gentlemen who have made inquiries amongst the working classes.

The Leicester Subdivision of the Union of Medical Practitioners.

For the last five years a scheme for collective locum-tenencies during holidays or sickness, devised by Dr. E. Lewis Lilley, has been successfully carried out. As illustrating the working of this scheme, during the period from April 1st to Sept. 30th, 1922, 17 doctors took advantage of the scheme and contributed £201 to the pool. The expenses amounted to £5 9*s.* 8*d.*, being cost of cards, posters, stationery, &c., leaving £195 10*s.* 4*d.* for distribution amongst the practitioners who attended patients under the scheme.

Financial.—It may be of interest to the profession to know that the practitioners on the panel in Leicester agreed, almost unanimously, to a levy being made annually of 1*d.* per annum for each insured person on their lists. This enabled the Committee in the year 1922 from the fund thus created—

(*a*) To meet the expenses of the Leicester Subdivision of the Union.

(*b*) To defray the expenses of the Panel Committee.

(*c*) To contribute £185 to the National Insurance Defence Trust.

(*d*) To provide £35 for the medical representation in Parliament Fund.

(*e*) To raise the sum of more than £100 for medical and allied charities, of which £50 was forwarded to the Royal Medical Benevolent Fund, £5 5*s.* to the fund for the relief of Russian doctors, and the remainder distributed locally.

Members of the Union can effect insurances on very advantageous terms, and the solicitors to the Union undertake for members the recovery of debts, on payment of a moderate commission. Members of the Union are also entitled to free legal advice in certain circumstances.

Other Details.—The Central Building, East Bond-street, Leicester, affords facilities for arrangements of a collateral nature being made. Hence, in addition to the activities of the Public Medical Service, the meetings of the Local Medical and Panel Committees, and of the Leicester subdivision of the Union of Medical Practitioners, are held there, the personnel of these committees being practically identical with the board of management of the P.M.S. The meetings of the Leicester Medical Society are held in this building and the library of the Society is housed there, as also is the Leicester Medical Club. It will thus be seen that the Central Building of the P.M.S. is the centre of medical activity in Leicester, and with the various interests being so interwoven and linked up, it has tended to make the medical profession in this city a progressive and united force, and has greatly increased good fellowship among them.

In my opinion, the inauguration of a system of public medical service by the medical profession throughout the country is a step that should be taken, and taken promptly. Not only does it provide facilities for women and children of the working classes to ensure medical attendance by means of small periodical payments, but it is a system entirely free from outside interference, and the central organisation is exceedingly useful in dealing with the mass of detail now inseparably associated with matters pertaining to the medical profession. The board of management are anxious that their experience of the last ten years shall be made available to the whole of the profession. With that end in view they will be pleased to receive members of the profession at any time, but extend a special invitation for Friday, Nov. 30th, when the officers of the Service will be in attendance and will be glad to welcome all who can make it convenient to attend.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following table gives some of the principal health statistics of four counties for 1922:—

Name of county.	Estimated population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
							Infant mortality		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Legit.	Illegit.	Maternal mort. in childbirth.
Derbyshire ..	595,980	22·0	10·8	0·8	1·0	2·0	70	117	4·0
Essex	917,414	18·6	11·1	0·9	1·2	2·2	51	116	3·2
Isle of Ely ..	74,653	21·0	12·0	0·7	1·4	2·1	57	131	3·8
Dumbartonshire	55,343	22·3	12·7	1·0	1·1	3·1	(80)*		5·7

* The figure in brackets gives the undivided infant mortality rate.

Derbyshire.

Dr. Sidney Barwise reports that in three areas in the county a whole-time medical officer of health is employed by the local sanitary authorities, who also carries out certain duties under the county council, and that the Ministry of Health have suggested that the county council might confer with the local sanitary authorities with a view to the extension of this system as opportunity offers. Dr. Barwise thinks that if this policy is agreed upon, the sanitary administration of the county in the course of 10 or 15 years, without any sudden change, will be placed upon a much more efficient basis. Speaking of the neglect of vaccination, Dr. Barwise thinks we ought to have powers for the compulsory vaccination of all contacts. He also makes the suggestion that a scheme might be devised by which the cost of treating cases of small-pox unprotected by vaccination would be borne by the unvaccinated. During the year some thousands of circulars have been distributed giving information on the subject of cancer. Dr. Barwise attributes the fall in infant mortality to the increase of breast-feeding, better artificial feeding, the sterilisation of milk, and the substitution of dried milk for carbohydrate foods.

The cost of the Ashbourne maternity home was £2 2*s.* per week and of the Ripley home £3 7*s.*, while the average of 55 maternity homes receiving Government grants was £4 14*s.* 9*d.* Dr. Barwise thinks more provision should be made in these homes for paying patients. Midwives attended at the birth of 10,168 infants, leaving 2927 presumably attended by medical practitioners. Midwives sent for medical help in 1229 cases. There were 30 cases of puerperal fever with 17 deaths, and of the deaths 7 occurred in the practice of midwives. In one case of post-partum hæmorrhage no midwife or doctor had been engaged, and the patient died before a doctor could attend. Three deaths took place after Cæsarean section in hospital. Of the eight deaths from eclampsia six might be regarded as preventable. Dr. Barwise thinks the coöperation of the medical profession in an investigation into maternal mortality should be invited and that the council should pay for a detailed report on the circumstances of every such death.

A full review is given of the tuberculosis problem. Dr. Barwise sets out to consider in what direction expenditure in these days of restriction will give the best value, and concludes that there is nothing to be undone, but that Derbyshire ought to proceed steadily to the completion of its scheme by the provision of a pavilion for advanced female cases at Walton and the development of the Bretby estate both as an open-air residential school and a sanatorium for the pre-tuberculous type of child with both bone and joint and lung disease. A letter from the Ministry, dated March 23rd, 1923, is quoted praising the efficiency of the Derbyshire scheme and pointing out the need for these additions thereto. Dr. Barwise thinks that much in the way of the building up of resistance may be achieved by the encouragement of gardens and allotments in which people can grow their own vegetables, and by the provision of open-air schools, both day and residential. Dr. Barwise appears to fear that if milk is made tubercle-safe, we shall get rid of bovine tuberculosis at the expense of losing some of our immunity to human tuberculosis. He considers that after three years of age the child should take its risk in acquiring immunity through a tuberculous gland by being given small doses of the ordinary raw milk of commerce, but never from the milk of a single cow. This experiment would have its dangers, and, on the whole, we think that most sanitarians, under present circumstances, will be inclined to accept Louis Cobbett's pronouncement that the harm done by the bovine bacillus is certain, the benefit it confers is problematical.

As regards the prevention of massive infection, Dr. Barwise comments on the prohibitive cost of segregating advanced consumptives, and instances a case discharged two years ago who cost the county £600 during his five years' isolation and is still alive though unable to work. He thinks that more might be done by home supervision in such cases, following a short educational course in an institution. He also thinks that when the advanced case is the mother, it would be better and cheaper to board out the children with foster parents in the county than to segregate the mother. Attention is drawn to the fact that there are 18,000 empty beds in Poor-law infirmaries available for the stage in which no treatment is required other than a clean bed and food. The examination of the sputum of children by the Ellerman and Erlandsen concentration method continues to be of great value. Good results are reported from quartz-lamp treatment (Bach technique), especially in the case of tuberculous glands and lupus. Dr. Barwise thinks a charge should be made to those who can afford to pay for treatment at the V.D. clinics, and he also emphasises the fact that in a county area the treatment of gonorrhœa can only be satisfactorily carried out by general practitioners.

The resolutions of the Mental Deficiency Act and Mental Hospital Committees advocating the sterilisation of mental defectives convicted of sexual offences and the voluntary sterilisation of unimprovable male defectives are quoted with approval. Under "Water Supply," it is pointed out that the sanitary authorities in the watershed of the Trent have not taken sufficient advantage of the right to take water from the Derwent Valley water mains secured for them by the county council. Progress is reported in the matter of sewage disposal schemes. As regards the milk question, Dr. Barwise thinks we ought to strive for clean tubercle-free raw milk delivered in bottles rather than content ourselves with the pasteurised product.

Essex.

Dr. W. A. Bullough reports that the London County Council have continued the arrangement by which the services of Dr. W. McC. Wanklyn are made available for the help of any medical officer of health in the administrative county in the event of suspected small-pox. During 1922 five such applications were made, and in each case Dr. Wanklyn was satisfied that the disease was not small-pox. The tipping of refuse on the Essex marshes along the northern bank of the Thames has again come under consideration. A conference of representatives of the Ministry of Health, the London County Council, the City Corporation, and the Metropolitan Borough Councils was held in June, and it was pointed out that, owing to the need for economy, tipping must continue for a long time, and as a result the Ministry have drawn up a list of precautions for abating and preventing nuisances arising from refuse-tips. An unusual nuisance, apparently caused by oil refining, has given rise to many complaints in south-east Essex. The nuisance consists of offensive smells with flavours resembling those of benzine and garlic. The sanitary authorities chiefly affected are those of the borough of Southend-on-Sea and the rural districts of Rochford and Orsett. Consultations have been held with the Ministry and proceedings suggested under the nuisances clauses of the 1875 Public Health Act. Some improvement has taken place, but complaints have again arisen.

The number of persons in the county living more than two to a room was less favourable at the 1921 Census than it was in 1911; 70 per cent. of the families have separate houses, 26 per cent. live two in a house, and 4 per cent. live three or more in a house. In the administrative county 4407 houses were erected in 1921, 2584 by local sanitary authorities and 1823 by private enterprise. Dr. Bullough has nothing but praise for the council houses erected in Essex. The only drawback is that the rents are beyond the means of the tenants, who are often compelled to sublet a portion of the house. On June 15th a conference was held, on the invitation of the Ministry of Health, for the purpose of forming a joint committee for town-planning the region on the northern bank of the Thames extending from Shoeburyness to East and West Ham. Unless steps are taken Dr. Bullough points out that houses will be erected on low-lying unsuitable sites.

The County Council and the County Nursing Association continue to work in the closest coöperation. Dr. Bullough looks forward to the time when the whole of the rural parishes will be served by district nurse-midwives. Owing to the need for economy, the Association is only able to establish five new associations per annum. There are now 126 district nursing associations affiliated to the County Association, and of these 113 participate in the County Council's combined nursing scheme. Dr. Bullough regards the nurse-midwives as one of the most important factors in promoting the health and well-being of the community. In addition to their work as district nurses and midwives, they now coöperate with the county health visitors, by following up defects amongst school children, by carrying out tuberculosis after-care, and maternity and child welfare work, &c. In the rural parts of the county, says Dr. Bullough, there is no one more fitted to carry out the task of improving the individual's environment and knowledge of the laws of hygiene and health than the district nurse-midwife.

Isle of Ely.

Dr. J. Pixton Walker, who succeeded Dr. Percy Moxey as county medical officer of health on Oct. 31st, 1922, presents his first annual report. He states that the year has been one of uneventful progress. The Isle of Ely does not support any general or special hospitals, and in such circumstances the tuberculosis clinics at Ely, March, and Wisbech have continued to do good work and fulfil a long-needed want. During the year 30 patients were sent to sanatoria outside the county. Dr. Walker draws attention to the extensive use of goats' milk in the Isle and the advantage that goats are rarely affected with tuberculosis. Addenbrooke's Hospital, Cambridge, is now the only available V.D. treatment centre since the clinic at Peterborough was closed.

Dumbartonshire.

In the absence, through illness, of Dr. Thomas Lauder Thomson, Dr. Alexander Johnstone presents the annual report, and states that the county has been free from any serious outbreak of infectious disease during 1922. No further progress has been made towards the erection of a county sanatorium. In the western district the beds set aside for tuberculosis at the Dumbarton Joint Hospital have been constantly occupied, but there is difficulty in persuading patients to make use of the 20 beds set aside by the Dumbarton Poor-House Combination in the poor-house grounds. The need for an after-care organisation is pointed out. Better accommodation is required for the maternity and child welfare centre serving the Vale of Leven. There were two outbreaks of foot and mouth disease in the eastern district. In one case the milk was all made into butter, and the point arose as to whether under the existing law a local authority has the power to suspend a supply of butter made from the milk of infected cows.

SCHOOL MEDICAL SERVICE.

Dumfriesshire.

OF a school roll of 12,711, 5089 children were examined in the code groups, and 4063 special examinations were made. Of those examined in the code groups only 9·33 per cent. were free from defect. Nearly 40 per cent. showed nutrition below average, although only two could be classed as "bad" nutrition; 38 had discharging ears, 16 were markedly deaf, and 110 were found to be dull and backward. Treatment is so far confined to visual defect and dental decay. Of 1942 children dentally inspected 55 per cent. were found to require treatment, and Dr. John Ritchie reports that 62 per cent. of these availed themselves of the school dentist's services.

Stockport.

The school population here is 16,700, and during 1922 the number of children inspected in the routine groups was 5680. Of these 33·6 per cent. were found to require actual medical treatment. The total number inspected by the school dentist was 2500, of whom 2072 received treatment. The staff consists of the medical officer of health, Dr. W. H. Rowell, who is also medical officer to the Education Committee, a school medical officer, an assistant school medical officer, and three nurses. There is a central school clinic where work goes on all day, and a branch clinic is open one afternoon a week. The attendances at the clinics for the year amounted to 10,772, representing 2772 children; 1631 of these suffered from skin affections. There are 125 child cripples in this county borough, 27 of these being crippled by tuberculosis, and the majority of the remainder by infantile paralysis. When seen by the school doctor they have usually reached a stage where treatment is not satisfactory. Twelve stammering children were treated by a course lasting six weeks. A "following up" class was held each Saturday morning, of which a large proportion of the children took advantage. Of the 12, 7 were considered cured and 5 improved.

St. Helens.

Of an average roll of 18,194 elementary school children 10,162 were medically examined, and of these 38 per cent. showed defects. By the end of 1922 64 per cent. had received treatment. The medical officer of health, Dr. F. Hauxwell, is also the school medical officer, and the three assistant medical officers of health are also assistant school medical officers, their time being so divided that the school medical service has the equivalent of one whole-time officer. Dental inspection and treatment are carried out by a whole-time dentist who gives five-sixths of his time to school work and the remaining sixth to tuberculous patients. The town is divided into 14 districts, each having a health visitor, who is responsible for the maternity and child welfare work, tuberculosis, infectious diseases, and school nursing. In this way she gets to know family conditions well, and is therefore of great assistance to the school doctor.

MENTAL HOSPITAL REPORTS.

THE annual report of the *Glamorgan County Mental Hospital, Bridgend*, an exceptionally large institution accommodating nearly 1800 patients and possessing five medical officers, unfortunately gives an impression of considerable friction with the local authorities in regard to electric and water supply, and in regard to the report of a committee which apparently made unfounded criticisms as to the administration of the hospital. The commissioner's report, which is reproduced, suggests a number of possible improvements: The clothing of the women is unattractive. an insufficient number of night garments is provided. and some patients are obliged to undress in the day-rooms; no patients are provided with slippers. The methods of dealing with soiled linen are criticised, and the necessity of bacteriological examination in cases of diarrhœa is emphasised. Money allowances should be made to patients going on leave. A regrettably small proportion of the nursing staff enter for the examinations of the Medico-Psychological Association. The improvement of classification and accommodation is being considered. The difficulties of administering an institution of such unusual size as this are very great, and under different economic conditions it would, no doubt, be reconstructed on a different plan.

The annual report of the *Coppice Mental Hospital, Nottingham*, which is largely maintained by voluntary contributions, shows a satisfactory financial position at the close of the year. The number of recoveries recorded has only once been exceeded in the long history of this hospital, and the management have reason to be satisfied with a successful year's work.

No feature of special interest is to be noted in the annual report of the *Roxburgh District Asylum*. Certain structural alterations have been made which will afford better accommodation for some of the female patients. A somewhat grandiloquent effect is achieved in the chairman's report by recording the average number of patients under various heads to three points of decimals; the medical superintendent, in reproducing the same figures, contents himself with one point only.

The most important feature in the report of the inspector of *Hospitals for the Insane, Queensland*, is no more than a prophecy. There is every prospect that the increase in the general population will necessitate the building of another asylum, and it is urged that the plans and site should be brought under consideration without delay. It is interesting to note that a thorough investigation showed extensive hookworm infection in two of the asylums, stool examination being positive in no less than 477 cases.

ROYAL MICROSCOPICAL SOCIETY.—The section of the Society which has been formed to deal with the Industrial Applications of the Microscope will hold its next meeting at 20, Hanover-square, London, W., on Nov. 28th, at 7 P.M., when Mr. Conrad Beck will show a new projection microscope for measuring fine wires and fabrics to 1/50 000 inch, and Messrs. Adam Hilger, Ltd., will show Dr. Müller's X ray spectrograph for the examination of sub-microscopic crystalline structures. At 7.15 a lecture demonstration will be given by Mr. J. E. Barnard on the Characteristics of a Microscope for General and Special Purposes; the Tests for Mechanical Efficiency that should be Satisfied. At 7.45 there will be an inspection of exhibits, and at 8 o'clock communications will be read by Dr. Sidney H. Browning on the Application of the Microscope to Industrial Diseases and by Mr. Charles A. Newton on the Microscope in the Examination of Condensed Milk, Sir Kenneth Goadby presiding.

Special Articles.

SCOTLAND.

(From our own Correspondents.)

The Edinburgh Obstetrical Society.

At a meeting of this Society, held on Nov. 14th, Dr. J. Lamond Lackie, the retiring President, delivered his valedictory address in which he reviewed recent advances made in obstetrics. Progress in this field, he said, was in many directions very striking but in others disappointing. Among the unsolved problems of obstetrics, none called more urgently for solution than that of the toxæmias of pregnancy. Round this there had accumulated a large literature, but unfortunately none of the theories was based on such incontrovertible evidence as to afford a reliable basis for prophylaxis and treatment.

The Toxæmias of Pregnancy.

Investigations of recent years pointed to the placenta as the probable source of the toxin. In this connexion Dr. James Young, of the Society, had advanced the view that products of placental necrosis might cause the phenomena of eclampsia. Recent biochemical research on renal and hepatic function suggested that in eclampsia the metabolic factor was not of so great a significance as Watson and Harding had shown must be assigned to it in the earlier months. While this was so, the lowered incidence of eclampsia in war years, especially on the continent—probably as a result of a diet poor in protein—suggests that the dietetic factor was of first importance. The Dublin method of treatment, which was yielding good results, was based on this hypothesis. It was previously the routine in the maternity hospital to avoid morphia in eclampsia. Now it was administered to control the seizures. Many believed that veratrone (a preparation containing the equivalent of 15 mins. of tincture of veratrum to the c.cm.) was a far better remedy than morphia—it certainly had a remarkable effect in lowering blood pressure and as a depressant to the central nervous system. Care must, however, be exercised as in large doses its depressing effect on the heart might be alarming or even fatal. It had been shown by statistics that the cases which could be classified as severe might be expected to show a mortality five times as great as those classified as mild, no matter what method of delivery was employed. Also the figures showed that the cases in which there was less obstetric interference showed much the best results. With regard to hyperemesis and also the so-called physiological morning sickness, there were evidences of a disordered metabolism showing itself as a glycogenic disturbance in the maternal liver. Other subsidiary but important factors were the neurotic factor, which through the sympathetic nervous system acted on the glycogen stores of the liver, the intestinal intoxication factor, the dehydration factor, the reflex factor, and the patient's health at the time of conception. Cases were classified as mild, moderate, or severe, and treatment consisted in a protein-free diet with the administration of carbohydrate, and glucose in particular.

The Treatment of Hæmorrhage: Indications for Cæsarean Section.

Regarding hæmorrhages in later months of pregnancy, the most striking advance was in the treatment of some by Cæsarean section. The pathology of concealed accidental hæmorrhage had been carefully studied, and it was now known that in a severe case the damage to the uterine muscle might be so severe as to have disastrous consequences. For that reason, many held that in concealed accidental hæmorrhage the safest treatment was Cæsarean section followed by hysterectomy. Of late the tendency was to try to save the uterus. The most recent theory as to the cause of accidental hæmorrhage was that it was a mechanical one, of the nature of an obstruction of the venous return from the uterus. The treatment of placenta prævia by Cæsarean section was an innovation of the last 20 years and in some cases it was doubtless the best line of treatment. Generally, however, especially in multiparæ, bipolar podalic version was the most favoured treatment, but in a primipara with a rigid os Cæsarean section was the most satisfactory means of saving both mother and child. Pressure on the placental site by a Champetier de Ribes was advocated, as many infants might be saved if this means of controlling hæmorrhage were used instead of by pressure of the breech on the bleeding site. By this method there would be no interference with the child till the actual moment of delivery and perhaps not then. There was no more difficult task for an obstetrician than to determine the best management of a case of slightly contracted pelvis. High forceps were to be avoided except on rare occasions; indeed, it was thought that forceps had been used too frequently for all indications. The maternal and fœtal mortality from the high forceps operation was greater than properly chosen and properly timed Cæsarean section. In recent years Cæsarean section had become so safe that there was risk of the indications becoming too numerous, and many Cæsarean sections were undertaken without real justification. In eclampsia it had not proved successful, but in cases of heart disease complicating pregnancy and labour, even uncompensated cardiac disease, the results so far published were good. Also the patient could be sterilised at time of operation.

The technique of the operation varied with different operators, and the suture material was a subject of much debate, but the strength of the scar probably depended more on the absence of sepsis than on the material used. Pubiotomy was an old operation and had been revived more in other countries than in this. It was an operation to be adopted only when forceps had failed and conditions contra-indicated Cæsarean section. It ought to compete with craniotomy, which he hoped in the future would only be reserved for cases of hydrocephalus or where the child was already dead.

The Use of Drugs in Labour.

The most striking therapeutic agent that had been introduced into obstetrics was the extract of the posterior lobe of the pituitary gland. It was very effective when used to bring on labour about full time, but less so in the induction of premature labour. During labour its application had been much abused, and during the second stage its employment was fraught with great danger. Cases should be carefully chosen; if not, there was great danger of laceration of the parts and even of rupture of the uterus. As a stimulant to the uterine contraction in the third stage it was very useful. As regards the management of labour, a great advance had been the employment of morphia-scopolamine narcosis. The only deterrent to its general use was its alleged dangerous effect on the baby.

Advances in Gynæcology.

In gynæcology the pathology of pelvic tumours and other lesions were more completely understood, and the large part played by venereal diseases in the causation of gynæcological disorders was being more appreciated. No subject had been more discussed than suppurative salpingitis. Some believed in immediate operation, others in expectant treatment and interfering when acute symptoms had subsided and chronic tubal disease and ill-health demanded it. Intrinsic dysmenorrhœa was still a vexed question and the opinions as to its causation and treatment, medical and surgical, were very diverse. Prof. Blair Bell had pleaded for a more accurate study of the pathology of the condition and for a clearer definition of the various causes of the pain. Radiotherapy, both by X ray and radium or by both, had come rapidly to the front as a method of treating gynæcological cases. It should be regarded not as an opponent of surgery, but as an alternative when operation seemed contra-indicated. Great benefit has been shown by its use in many varieties of gynæcological conditions.

With regard to endocrinology, it was well known that many conditions had as their basis some aberration in endocrine function and a great deal of work had been done with regard to it. In spite of that, the knowledge of the physiology of the glands of internal secretion was far from complete, therefore there was as yet no rational basis for organotherapy, which was largely empirical and often disappointing. With a fuller knowledge of the physiology of the pelvic organs conservative gynæcological surgery had come to be more practised. Ovarian tissue was less seldom sacrificed than formerly and conservative surgery of the Fallopian tubes more practised than formerly. It was less frequent to perform hysterectomy for uterine fibroids than previously was the case.

Dr. Lackie then welcomed his successor, Prof. B. P. Watson, to the presidential chair of the Society.

Glasgow.

Gifts to Glasgow University.

The museum in the new zoological building of the University is to be enriched by a collection of British insects, presented by Mr. A. H. Bishop, of Glasgow, and his son. The collection includes a large number of mounted and labelled specimens, forming an almost complete set of British coleoptera and a representative set of lepidoptera, a large number of unset specimens, and many works on entomology. Prof. Graham Kerr points out the value of such a collection in view of the close inter-relation between medicine, economic zoology, and entomology. Prof. Bryce also intimates that Dr. Knight, of Queen's Park Higher Grade School, has presented to the department of anatomy "a valuable osteological preparation, a series of models of the brain, and 300 lantern slides of photomicrographs of the tissues and organs of the body."

Glasgow Hospital for Women.

The annual meeting of the subscribers to the Glasgow Hospital for Women was held on Nov. 12th. Outdoor consultations for the year numbered 4050, and there were 225 operations performed. The extraordinary revenue enabled the directors to meet a deficiency of £631 in the ordinary revenue, and to add £836 to the capital account. The hospital is intended for women, who, while unwilling to enter a public hospital, are nevertheless unable to meet the expense of a nursing home, and their subscriptions have given the hospital invaluable financial support during the past year.

Death of Dr. Archibald Sloan.

We regret to announce the death of Dr. Archibald Sloan, which occurred at his residence in Glasgow on Nov. 15th. Originally a teacher, after graduation Dr. Sloan built up a large practice in Glasgow, and was at one time casualty surgeon to the Northern Police Office and physician to the Glasgow Central Dispensary. Dr. Sloan was for many years a member of Glasgow School Board, and took an especial interest in the physical training of children, in school medical inspection, and in the feeding of necessitous children. He had been for the last 15 years medical officer to the Glasgow Provincial Committee, and was a manager of the Western Infirmary and of the Broomhill Homes.

Sir Donald MacAlister, Principal of the University of Glasgow, has been appointed a deputy lieutenant for the city of Glasgow.

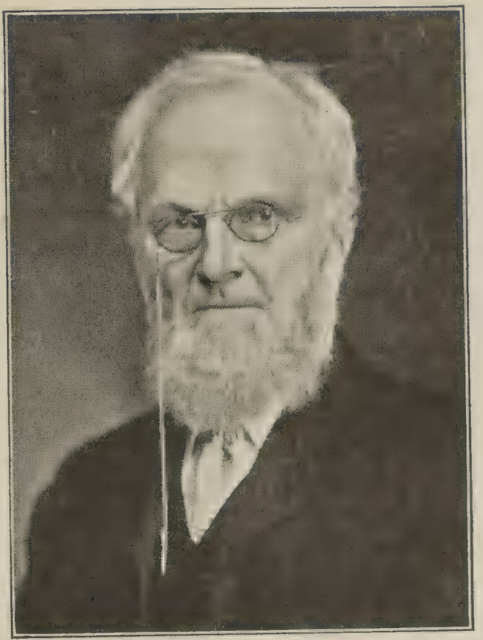
The People's League of Health Endowment Fund.—H.R.H. the Prince of Wales has given £20 in support of the appeal of the ex-Lord Mayor of London (Sir Edward C. Moore) on behalf of the £100,000 Endowment Fund of the People's League of Health, of which the King is patron.

Obituary.

THOMAS PRIDGIN TEALE, F.R.C.S. Eng., M.B. Oxf., F.R.S.,

CONSULTING SURGEON TO THE LEEDS GENERAL INFIRMARY.

We announced last week with deep regret the death of Mr. Thomas Pridgin Teale, the famous Leeds surgeon, which occurred on Nov. 13th at his house, Headingley, Leeds. He was by four years the senior Fellow of the Royal College of Surgeons of England, having obtained that diploma in 1857, and had reached the advanced age of 92 at the time of his death. He had a pedigree which pointed directly towards the fame which he obtained as man of science, surgeon, and sanitarian. His father, himself the son of a Leeds surgeon, was Thomas Pridgin Teale, F.R.C.S. and F.R.S., one of the originators of the Leeds School of Medicine, where he was lecturer for many years on anatomy and physiology, and where he made a name as a surgeon which is perpetuated in text-books by the original advice which he gave in connexion with amputations and urethral surgery. He was one of the Crown nominees on the first General Medical Council in 1858. His wife, and the mother of the subject of this notice, was the daughter of the Rev. Charles Isherwood, a Fellow of Magdalene College, Cambridge.



Thomas Pridgin Teale.

The second Thomas Pridgin Teale, whose career we are now outlining, was educated at Leeds Grammar School, Winchester, and Brasenose College, Oxford, where he graduated in mathematics in 1852 without particular distinction. He then started as a medical student at King's College, London, and four years later became M.R.C.S. Eng., graduating in medicine simultaneously at his university. He immediately became connected with the Leeds School of Medicine, and for some 20 years lectured there on anatomy and surgery, being appointed surgeon to the Leeds General Infirmary in 1864 in succession to his father. This post also he held for 20 years, retiring from the active staff in 1884, when he was appointed honorary surgeon to the institution. To-day it would be impossible for any surgeon to obtain the position which Teale enjoyed as alike a great general surgeon and a recognised specialist along completely different scientific and technical lines. He was, perhaps, in the first place an ophthalmologist although he did not practise as an eye specialist. He was a pupil of Bowman, wrote considerably and valuably on diseases of the eye and the technique of their treatment, and introduced the suction curette for the extraction of cataract. He was also a great plastic surgeon, and devised ingenious means for remedying cicatricial disfigurements from cervical adenitis in tuberculosis. Teale and his distinguished colleague at the Leeds General Infirmary, Clifford Allbutt, made elaborate inquiry into this distressing condition, with the result that the removal of the glands by operation was inaugurated and found to give favourable cosmetic results. The third direction in which Teale made fruitful innovations in surgical practice was in connexion with vesicular and urethral surgery. In the last two departments of practice he followed his father in the same manner in which he had followed him in educational and staff appointments. In a similar way son followed father when the subject of this memoir became Crown representative upon the General Medical Council in 1876, a position which he occupied for no less than 25 years, being elected five consecutive times. It need hardly be said that in the decisions of the Council Teale consequently played a very valuable part, for he was equipped, both as an authority on medical education and as an expert in medical science, with the additional merit of long-continued service.

To all the public Teale was widely known as a sanitarian, for here he wrote for popular as well as for technical audiences. In the first instance the question of domestic sanitation, or rather insanitation, in relation to medical practice occupied his attention, and some time before bacteriology could lend any force to his teachings he attributed to bad drainage many epidemic and septicæmic conditions, and much of the mortality after surgical operations, whether performed in private or in institutions. As long ago as 1879 he wrote a popular work entitled "Dangers to Health," which formed a pictorial guide to domestic sanitary defects and achieved popularity in France, Spain, and especially Germany, having been translated into the German language by the late Princess Christian. Teale lectured on domestic sanitation in Leeds and other large cities, and there is no doubt that he created a very wholesome public desire to do away with the abuses revealed. Later, he concentrated on the subject of ventilation, and wrote "Dust and Fresh Air: How to Keep Out the One and Let In the Other," and devised a method of ventilation with Tobin's tubes which for a time enjoyed considerable popularity. He wrote also a pamphlet entitled "Economy of Coal in House Fires," and demonstrated his theories upon domestic fireplace construction by the invention of the well-known "Teale grate."

Teale, who was elected F.R.S. in 1888 and made an Hon. D.Sc. of the University of Leeds shortly afterwards, was twice married, first to Alice, daughter of the Rev. W. H. Teale, who died in 1891, and secondly to Jeanie, second daughter of the late Mr. D. C. Jones, of Tamworth, and leaves four daughters and four sons, one of whom carries on the medical tradition of the family.

A colleague writes: "Various causes contributed to the beneficent influence which Mr. Pridgin Teale exercised in Leeds, in Yorkshire, and wherever his work was felt. Before everything must be placed his personal character. Next should come his enthusiastic interest in his profession and in collateral sciences, though it is probable that only the older generations can remember his contributions to surgery, ophthalmic surgery, and sanitary science, because they are now merged in the ordinary teaching of those subjects. Then his unobtrusive and obviously disinterested efforts to promote the welfare of Leeds gained for him the regard of those leading citizens who recognised the importance and value of his help. And lastly, his Oxford training and associations played a part not very easy to estimate, but one that should not be omitted. The following anecdote will show how he stood in the estimation of his colleagues. Many years ago the writer of these notes was discussing with one of them the degree of eminence to which Mr. Teale would be judged to have attained. My friend, who at the moment was in a somewhat critical vein, after pondering over the various items of Teale's record, enunciated the following verdict: 'Yes, there is no doubt he is a good little man,' and it was Teale's goodness that gave the high value to his public work and scientific achievements. He was, as has been indicated, a man of small frame, and the delicate figure went with a thoughtful, intellectual face. In repose the latter wore an expression of gravity, but in conversation it would break into a singularly alert and happy smile. The possible extravagances of an enthusiastic temperament were kept in complete subjection by a judicial frame of mind. His principles when enunciated were firmly implanted in his nature, and in forming his opinion on any question submitted to his judgment the unselfish sincerity of the man was transparent. In debate or at the council board of the hospital he would express himself in measured, temperate terms without any signs of warmth or irritation, even when circumstances might have been some excuse for them.

Such a character could not fail to acquire the respect and affection of younger men as well as of contemporaries, and affectionate esteem was the predominant feature of the regard in which he was held by those who became his colleagues after his elevation to the consulting staff. They respected him for the good work which he had done before they knew him, for the wise counsel which he was always ready to give to such of them as sought him in difficult moments, and latterly for his venerable old age. Their affection was gained alike by the charm of his friendly manner and by the evident pleasure with which he followed any work they were doing, and the pride which he took in their successes. Nor did he ever, despite his advancing years, become merely a tradition to the students. Probably most of them have listened to one of his occasional addresses; and it is certain that those who have will always retain a pleasant memory of an unusually interesting occasion.

His influence upon professional conduct in Leeds was wholly for the good, for his fine ideals and firm grasp upon right principles guided any advice which he might give. He was never led to side with any of the various currents set in motion by gusts of professional politics, and probably of some of them he remained ignorant, but his choice as a Crown representative on the General Medical Council was justified thoroughly by his wisdom. Many practitioners will remember his characteristic letters to them about their cases, written often in the train with a blue pencil upon single sheets of blue notepaper. But I wonder if it is generally known what became of the practitioners' communications. When each answer was written, unless the letter was required to confirm any notes on the case, it was torn up into fragments and stuffed into a small silk bag for subsequent destruction. This may be thought to be faddy, but it was an evidence of the meticulous care which he took to prevent any possibility of abuse of professional confidence. And there is a circumstance which speaks volumes for the respect in which Teale was held by the profession outside Leeds. Men who have since risen to eminence, and indeed who were marked out for it at the time, sought to be his assistants for a period that they might see private practice under his auspices.

Teale showed his sporting instincts by becoming an enthusiastic fisherman, and like most devotees of that art could wax eloquent on the joys of hooking and landing a salmon. He saw no monotony in fishing day after day without success, and he once assured the writer that if a real fisherman caught one salmon it should make him happy for a fortnight."

PROF. D. W. FINLAY, M.D., LL.D.

IN our last issue we briefly announced the death of Emeritus Professor David White Finlay, who from 1891 to 1912 held the chair of medicine at Aberdeen University. Born in Glasgow in 1840, Prof. Finlay graduated B.A. and M.D. at Glasgow University. He later continued his studies in Vienna, and was subsequently appointed physician and lecturer at the Middlesex Hospital in London and physician to the Royal Hospital for Diseases of the Chest and the Royal Scottish Hospital. He also acted as inspector of examinations in medicine to the General Medical Council. After his appointment to a professorship in Aberdeen he had the honour of representing the University at the bicentenary celebrations at Yale University in 1900, and in 1907 he became dean of the faculty of medicine in succession to Prof. Robert Reid. Royal recognition of his ability as a physician was bestowed on Prof. Finlay in the following year, when King Edward VII. appointed him one of the Honorary Physicians to His Majesty in Scotland, and in June, 1911, a similar honour was conferred upon him by King George V.

Prof. Finlay had many interests outside his professional work. In addition to his authorship of many publications in the medical papers and the Transactions of various medical societies, he was a recognised authority on yachting, and published several important works on that subject. He was an LL.D. of both Yale and Aberdeen Universities, a Fellow of the Royal College of Physicians, London, and of the Royal Society of Edinburgh.

In appreciation of Prof. Finlay as a teacher a correspondent writes: "It is now practically 12 years since Prof. Finlay retired from the regius chair of medicine in the University of Aberdeen and the post of senior physician to the Aberdeen Royal Infirmary, after having served the University devotedly for 21 years. After this period it is natural that impressions of a teacher should have become somewhat blurred by the imprint of other personalities at whose feet one has sat; but certain features of Prof. Finlay's teaching are unforgettable. He was one of a notable band of teachers at Aberdeen—Ogston, Hamilton, MacWilliam, and Stephenson are names that instantly occur, and among these vigorous and differing personalities Prof. Finlay held a distinct place of his own. He was not, perhaps, so loved personally by his students as 'Old Howdie,' but 'Dauvit' undoubtedly left his mark on the succeeding years of men. Punctuality, accuracy of observation, and interest in detail are three features of his teaching which cannot be forgotten.

Prof. Finlay in his systematic teaching of a subject so wide as that of his chair, succeeded in giving the student a thorough grounding in the standard principles of medicine: and to his clinical teaching he brought a wealth of experience and a shrewdness of observation which did not fail to drive home the essential features of a case in a way not easily forgotten. Occasionally, too, there were flashes of a quiet dry humour, generally at the expense of some unfortunate student who showed some lack of precision in his examination or tried to evade a direct answer to a searching question. One got the feeling that even at 9 A.M. on a wintry Aberdeen morning it was of little avail for the sharpest witted young student to try to bluff the old professor at a clinic. Youth is apt to criticise old age as being naturally old-fashioned (and sometimes, alas! with a certain degree of justification), but Prof. Finlay as the years went on never grew senile in either mind or body, and no better grounding in fundamentals of systematic and clinical medicine and of sound treatment could have been got by the student.

Apart from his actual professional work, Dr. Finlay took an active part in the affairs of the University as a whole. He was also deeply interested in the social questions of the city. And beneath the quiet and almost reserved manner to his students he had a very living interest in their well being. For his work he had the highest ideals, and the impression his memory leaves is that of unswerving uprightness as a man, and of throughness, accuracy, and love of truth as a teacher."

CHARLES RICHARDSON, M.R.C.S. ENG.

THE death took place on Nov. 11th, at his residence in Leeds, of Dr. Charles Richardson, reputed to be the oldest medical practitioner in the city, both as regards age and length of professional services. Dr. Richardson was in his eighty-first year, and underwent some weeks ago a severe surgical operation. He became M.R.C.S. in 1867, and was at one time President of the Leeds and West Riding Medico-Chirurgical Society. He had an extensive practice in his own district in Leeds, where his well-set-up figure was familiar for half a century. Unselfish to a degree, he was beloved by all who knew him, and his breezy manner did much to inspire his patients with confidence. He was intimately associated with the Volunteers, being Surgeon-Major to the 2nd W.R. Yorks V.R.E. He was popular as a cricketer and lawn tennis player and as a member of the old Archery Club. Himself a non-smoker and a teetotaller, he was not censorious of the use by others of tobacco and alcohol. One of Dr. Richardson's two sons was killed in the war.

ALEXANDER E. GARROW, M.D., C.M. MCGILL.

THE death from heart disease is reported from Montreal on Nov. 7th of Dr. Alexander Garrow, well known as a surgeon throughout Eastern Canada. Of Scottish origin, he was the son of John Garrow, born in Ottawa in 1862, and educated there and at McGill University, where he graduated in 1889 as gold medallist. After practising for some time in Ottawa as partner of the late Dr. A. A. Henderson, he settled in Montreal, where he became Assistant Professor in Surgery and Clinical Surgery at McGill University and assistant surgeon to the Royal Victoria Hospital. In 1891 he married Miss Victoria Craig of North Gower, Ontario.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lt. (ret.) J. G. Stevens to be Surg. Lt.-Comdr. (ret.).

A. W. Ross and J. Hamilton to be Surg.-Lts.

Surg.-Comdrs. A. E. P. Cheesman to *Weymouth*, on completing, for passage out and home; and Surg. Lt.-Comdr. E. Hefferman to *Ganges*, for R.N. sick quarters.

ROYAL ARMY MEDICAL CORPS.

Capt. T. K. Boney retires, receiving a gratuity, and is granted the rank of Maj.

Lt. H. A. Gilkes resigns his commn.

MILITIA.

The undermentioned Capts. to be Majs.: T. Walker and W. McK. H. McCullagh.

TERRITORIAL ARMY.

Maj. E. W. Herrington having attained the age limit is retd. and retains the rank of Maj.

Maj. A. Ayre-Smith resigns his commn. and retains the rank of Maj., with permission to wear the prescribed uniform.

ROYAL AIR FORCE.

The undermentioned are granted permanent commissions: R. W. Ryan to be Squadron Leader; and E. C. K. H. Foreman and C. A. Lindup to be Flight Lts.

A SOUTH AFRICAN "MEDICAL" PRESCRIPTION.—At Dordrecht Circuit Court, Cape Province, S. Africa, a man named Henry Lawrence was recently charged with posing as a doctor under the name of Hendrik Hugo. Lawrence had lived in Basutoland and he had professed to treat a number of people and had received considerable sums of money (in one case over £60) from them. The "medicine" used seemed to be ordinary soil, though the accused maintained that it was a concoction of roots. The judge, in passing a sentence of three years' hard labour, described the case as the most extraordinary in his personal experience.

Correspondence.

"Audi alteram partem."

THE LONDON FEVER HOSPITAL.

To the Editor of The Lancet.

Sir,—You have given a kindly notice of the London Fever Hospital from the medical point of view. May I add a few words from the patient's side of the question?

A good many years ago I had an attack of scarlet fever. My doctor advised me to go to the London Fever Hospital, telling me I should get there the very best medical attendance and nursing. He was right. The visiting physicians at that time were Sir William Broadbent and Dr. Cayley, of Middlesex, and Dr. (later Sir) Shirley Murphy was the R.M.O. I found in them kind and pleasant friends, and our friendship lasted till they died. Like many other patients I got attached to the hospital and joined the committee. We have always had three or more ex-patients on the committee, and it is often convenient to have on a hospital committee men who know it from the inside as well as from the outside.

From the patient's point of view, a hospital has many advantages over even the best nursing home. You have eminent visiting physicians, and there is an R.M.O. always on the spot. If any emergency occurs the whole appliances of the hospital are ready to hand. The nurses are specially trained, and are under a reliable matron. The hospital is constructed for the comfort and convenience of the sick. For example, at the L.F.H. 22 of the private rooms open out on to balconies, so that patients can be moved out into the open air when the weather permits. There are many other advantages known to everyone who is acquainted with the inside of a good hospital.

I am, Sir, yours faithfully,

Nov. 19th, 1923. M. D. Chalmers.

ANNUAL MEETING OF THE FELLOWS AND MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of The Lancet.

Sir,—Will you favour me with space to reply to the remarks of the President of the College at the close of the annual meeting on Nov. 15th? The Members had not an opportunity of answering then, and Sir John Bland-Sutton did not reply to the suggestions made nor to the points brought forward for the first time, save by reading a prepared statement. The President told us if we wanted a vote for the Council all that was necessary was to become Fellows and lauded the status of the College, its library, and museum. The mouse in the trap is not interested in being told of the excellent quality of the cheese that has attracted him. He is likely, if he can, to tell his own little mice and other mice outside not to follow him. The President appears to give all the credit to the Charter of 1843 for the high position of the College to-day, but one seems to have heard of great surgeons of the College before that date, and surely John Hunter deserves some credit for the fame of the museum. Is there not some evidence of myopic vision in the prospect and retrospect of the Council of the College?

The Member is the "foot" in the shoe, and he knows when and where it pinches. All he asks is that his "head" (the Council) should appreciate, and if possible, relieve his discomfort. That is not possible if the lines of communication—the nerves—between the "foot" and "head" are disconnected, as they are at present. There is no liaison officer between the Members and the Council—no way by which the Council can now get first-hand knowledge of the Members' views This is the essence of the Members' difficulty and claim. From the President's speech one would infer that the College is only concerned with the production, on eugenic lines, of a perfect surgical baby. When he is born his College leaves him on the (outer) steps for any chance foster-mother to protect—e.g., the B.M.A. This appears to be the College conception of parental responsibility. If such is the sole function of the College, why does it speak in the name of its 18,000 Members, without first ascertaining their views on matters of medical policy when consulted by the Government or other public bodies? The Council last year made a point that in conceding the Members' claim it would be acting at variance to the views of its electorate of 1700 Fellows. But the last occasion it consulted the Fellows on this question was in January, 1897.

The Society of Members sent a questionnaire post-card to the Fellows some months ago. The results are still coming in from abroad, but a surprisingly large number of Fellows courteously replied, and over 73 per cent. of the replies were in favour of the Members' claim. The Fellows were praised by the President for showing great interest in their College because less than two-thirds of them voted (by post) for the Council. While the Members were said to be apathetic because, though scattered over England and the Colonies, busy men in general practice, they did not come in larger numbers to the annual meeting to vote in person for their claim. Can it be wondered that they are not eager to come when the only result of their exertions is to receive from the Council a chilling *non possumus?* Is there logic, or fairness, or even a common denominator in this comparison? Would it not be more reasonable for the Council, if they have any real doubt as to the Members' views, to issue a questionnaire to them on the subject? If they would then meet representative Members round a table they could easily reach a solution, satisfactory to all, which would greatly strengthen the College and the diplomates.

I am, Sir, yours faithfully,
Redmond Roche,
President of the Society of Members of the Royal
Nov. 17th, 1923. College of Surgeons of England.

THE IMPORTANCE OF NASAL SINUS INFECTIONS.

To the Editor of The Lancet.

Sir,—The contributions of Dr. A. L. Yates on the Simulation of Pulmonary Tuberculosis by Painless Maxillary Sinusitis (The Lancet, Nov. 3rd), and of Dr. T. B. Jobson on Unsuspected Nasal Sinus Disease (Nov. 10th) are of immense practical value, and in each the thesis is advanced in a manner that convinces. I have myself urged the import of nasal sinusitis as a cause of symptoms so difficult to differentiate from those of pulmonary tuberculosis. Apart from exploration of the sinuses that a diagnosis of pulmonary tuberculosis without the tubercle bacillus being found should be accepted with caution and should always lead to the suspicion of a focal sepsis, while the almost equal import of sinusitis or indeed of any obstructive nasal defect co-existing with pulmonary tuberculosis was brought home to me 20 years ago by cases referred to me by Dr. Thurnam, of Nordrach-on-Mendip. Such nasal defects may neutralise all the advantages of sanatorium treatment. I would, however, venture to challenge Dr. Yates's statement that the larynx shows general redness and swelling of the posterior surface of the arytenoids when, and only when, the epiglottis is not tilted backwards, for while such evidence of laryngitis is not seldom present in nasal sinusitis, it is very often non-existent, and its occurrence or absence can hardly be attributable to the position of the epiglottis.

But both Dr. Yates and Dr. Jobson seem to me to attach too much value to the appearance of pus. Dr. Yates states that "frontal and anterior ethmoidal sinusitis do not complicate the diagnosis of chest conditions, because pain is always present in these conditions, and attention is early attracted to the nasal condition. Posterior ethmoidal and sphenoidal sinusitis have been met with in conjunction with infection of other sinuses, but not otherwise." These statements are incorrect, and their acceptance may lead to cases of sinusitis simulating or complicating phthisis being overlooked. Dr. Jobson, I suggest, attaches too much value to exploration of the maxillary antra by puncture and lavage, and depends for his diagnosis on the appearance of pus in the escaping fluid, but he affords no evidence of his explorations extending to the other sinuses, notwithstanding his early emphasis of the size and import of the sphenoidal sinuses. It is the value of these contributions and their indications of scientific progress in fields of work hitherto insufficiently explored that impels me to invite their further attention to the more exact methods of determining or excluding the existence of focal infection, especially in the ethmoidal cells and sphenoidal sinuses. Also I suggest confirming their diagnosis of maxillary antral and other sinus infections by histological and bacteriological investigations rather than taking the macroscopic appearance or absence of pus as their criterion of infection, otherwise reliance on imperfect though generally accepted methods may lead them to the error of excluding a diagnosis of sinus infection which nevertheless exists, mistakes that I am conscious of having frequently made myself until I adopted the method of exploring individual sinuses by the suction syringe and filming and culturing the sinus contents.

I am, Sir, yours faithfully,

P. WATSON-WILLIAMS, M.D. Lond.

Clifton, Bristol, Nov. 19th, 1923.

EPIDEMIC DIAPHRAGMATIC PARALYSIS.

To the Editor of THE LANCET.

SIR,—In view of the annotation on this subject in THE LANCET of Nov. 17th, it might be worth recording that there is an epidemic of a similar nature in this rural area. Since Oct. 30th 30 cases have come to my notice. The attack starts suddenly with painful respiration, or possibly pain in the epigastric or right hypochondriac regions, made worse by any movements. Slight fever (up to 101° F.) is generally present, also constipation and furred tongue. The pain generally lasts three days, having periods of greater or less intensity, and often passes into the right shoulder, neck, or lumbar region. After one day of complete ease the pain has recurred in one-third of the cases, with fever up to 101°, and in these cases has been present up to the seventh day. White blood counts were made in two cases which were suggestive of appendicular colic, but no leucocytosis was noted. There has been an absence of headache, sore-throat, coryza, nausea (except in one case), glandular enlargement, and prodromal symptoms. Infection would appear to be by contact, and three cases have suggested an incubation period of one week.

It would be of interest to hear if there has been any spread of this epidemic and if so the earliest date on which it was noted. I might add that cases have occurred in an area where there are two different water-supplies.—I am, Sir, yours faithfully,

Godalming, Nov. 18th, 1923. H. W. LEATHAM.

PRESENTATION TO SIR ALFRED RICE-OXLEY.—At Kensington Town-hall on Nov. 15th, in the presence of a large and representative gathering including many medical men, a presentation was made to Sir Alfred and Lady Rice-Oxley, ex-Mayor and Mayoress of Kensington, for the many valuable public services they had rendered to the Royal borough during Sir Alfred Rice-Oxley's three years' tenure of the office of Mayor. The Mayor, Councillor A. J. Allen, presided. The presentations, made by Lord Phillimore, consisted of, to Sir Alfred Rice-Oxley a portrait of himself, painted by Mr. W. W. Russell, A.R.A., and to Lady Rice-Oxley a handsome diamond pendant. Sir Alfred and Lady Rice-Oxley both replied. Sir Alfred Rice-Oxley then presented the portrait to the borough, so that it might hang in the town-hall with the portraits of other mayors, and himself retained the replica.

Parliamentary Intelligence.

HOUSE OF LORDS.

FRIDAY, NOV. 16TH.

Prorogation of Parliament.

THE Lord Chancellor, having read the King's Speech in His Majesty's name, prorogued Parliament to Thursday, Dec. 20th.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 14TH.

Slum Clearances.

Mr. GILBERT asked the Minister of Health how many grants, and what was the total amount of the same, given by his department during 1922 and the present year for slum clearances; and what towns or areas the largest amount of this sum would be given.—Lord E. PERCY (Parliamentary Secretary to the Ministry of Health) replied: Eighty-six local authorities are undertaking, or have under consideration, schemes for the improvement of slum areas, and the annual Exchequer contribution towards the losses on these schemes will be approximately £127,000. The largest contributions will be made in the case of the London County Council, who contemplate schemes involving a total annual loss of £100,000, of which half will fall on the Exchequer. A number of these schemes have already been confirmed. Schemes of considerable magnitude are also proposed by a number of the more important county boroughs, notably Liverpool and Manchester.

Workmen's Compensation Bill.

The Workmen's Compensation (No. 2) Bill was read a third time. The Royal Assent was given to this measure on Friday, Nov. 16th, previous to the prorogation.

THURSDAY, NOV. 15TH.

Panel Doctors' Fees.

Lieut.-Colonel NALL asked the Minister of Health whether he had received an answer to the final offer made to the panel practitioners regarding their terms of service after Jan. 1st, and, if so, what action he proposed to take.—Sir W. JOYNSON-HICKS replied: Yes, Sir. My offer was accepted by a unanimous resolution of the Conference of Panel Committees held yesterday, the alternative being chosen of a Court of Inquiry to investigate and make recommendations as to the capitation fee properly payable as from Jan. 1st. I am taking steps to set up the court as quickly as possible. I understand that the resignations will be withdrawn.

Mr. RHYS DAVIES: Will the right hon. gentleman state where he is going to find the money to pay the increase from 7*s.* 3*d.* to 8*s.* 6*d.*? Will he consult the approved societies on this question and at once call together his own Consultative Council to find out what they think?—Sir W. JOYNSON-HICKS: The question whether anything will have to be paid to the doctors above 7*s.* 3*d.* is a matter for the Court of Inquiry. There is no need for me to consider finding any money until the court has arrived at a decision. I shall be perfectly prepared to call together my Consultative Council. I have been in communication with them yesterday and to-day, and wrote them a very long letter in reply to one which they sent to me this morning.

Sir KINGSLEY WOOD: Will it be open to any insured person to go before this Court of Inquiry and to give evidence as to the character of the panel service and to urge that far too much money has already been spent upon it?—Sir W. JOYNSON-HICKS: There are something like 14,000,000 insured persons, and if they all claimed the right to appear the inquiry would be impossible. In reply to Lieut.-Colonel POWNALL, we have arranged that the approved societies who represent to a very large extent the insured population will have the fullest rights to appear before the Court of Inquiry and state their views.

Colonel NALL: May I ask whether in the final consideration of this question the chief interest to be considered will be that of the insured persons?—Sir W. JOYNSON-HICKS: Certainly. The object I have had in all these long negotiations has been to get an adequate and proper medical service.

Replying to further questions by Mr. DAVIES, Sir KINGSLEY WOOD, and Sir J. BUTCHER, Sir W. JOYNSON-HICKS said that he had already dictated letters to three gentlemen whom he had asked to act as members of the Court of Inquiry. He was not in a position to announce the terms of the inquiry or the form of reference to be put before the court, but it would be a very simple one. It was not yet drafted, but he might say without binding himself to the exact terms that it would simply be to ask the Court of Inquiry to ascertain what was the correct figure to be paid to the doctors for the medical service which they rendered. It would be open to all parties to appear before the court.

European Death-rates.

Mr. RHYS DAVIES asked the Minister of Health to state the death-rate among adults, men and women separately, in each European country during the last four years, as compared with our own statistics, giving similar figures covering infantile mortality.—Sir W. JOYNSON-HICKS replied : I am not in a position to state the death-rates in these countries for adults only, or for men and women separately. The following table gives such information as is available as to the general death-rates (D.R.) and the infant mortality-rates (I.M.R.) for the four years 1918 to 1921. The figures for 1922 are not yet available.

—	—	1918	1919	1920	1921
England and Wales	D.R.	17·6	13·7	12·4	12·1
	I.M.R.	97	89	80	83
Scotland	D.R.	16·3	15·6	14·0	13·4
	I.M.R.	100	102	92	90
Ireland	D.R.	17·9	17·6	14·8	14·2
	I.M.R.	86	90	83	77
Germany	D.R.	24·9	15·5	15·0	—
	I.M.R.	154	121	131	134
Spain	D.R.	33·0	22·7	23·0	21·1
	I.M.R.	183	156	165	147
France	D.R.	22·0	19·3	17·3	17·7
	I.M.R.	140	123	99	115
Denmark	D.R.	12·9	12·9	12·2	11·1
	I.M.R.	74	92	90	77
Bulgaria	D.R.	28·8	19·8	—	—
	I.M.R.	138	109	—	—
Belgium	D.R.	21·2	14·9	13·7	13·8
	I.M.R.	134	99	104	115
Austria	D.R.	26·5	20·5	18·9	16·9
	I.M.R.	193	156	147	—
Hungary	D.R.	25·9	19·6	21·2	19·3
	I.M.R.	217	159	193	197
Italy	D.R.	—	—	—	—
	I.M.R.	—	—	—	—
Norway	D.R.	17·0	13·8	12·7	11·4
	I.M.R.	63	67	56	—
Netherlands	D.R.	17·1	13·2	12·0	11·1
	I.M.R.	93	84	73	76
Portugal	D.R.	40·0	24·1	22·4	—
	I.M.R.	—	—	—	—
Finland	D.R.	28·6	18·9	15·8	13·9
	I.M.R.	115	135	97	95
Sweden	D.R.	18·0	14·4	13·2	12·3
	I.M.R.	65	—	—	—
Switzerland ..	D.R.	19·4	14·2	14·4	12·7
	I.M.R.	88	82	84	74
Roumania	D.R.	—	—	—	—
	I.M.R.	301	193	231	—

Fees of Doctors and Midwives.

Mr. RHYS DAVIES asked the Minister of Health to state separately the charges or fees of doctors and midwives attending in confinement cases in working-class homes in the years 1911, 1912, 1913, 1922, and 1923, respectively.—Sir W. JOYNSON-HICKS replied : I have no information as to the charges made in these cases in the years 1911 to 1913. I understand that the fees of midwives now vary from 15*s.* to 30*s.* per case in rural areas, and from 1 guinea to 2 guineas in urban areas. These figures apply both to 1922 and 1923. I have no information as to the charges made by doctors attending these cases in their private practice, but when a doctor is called in by a midwife under Section 14 of the Midwives Act, 1918, he receives a fee of 2 guineas from the local supervising authority. The services rendered for this fee are specified in a circular issued by my department.

Cost of Pensions.

Mr. SHORT asked the Minister of Pensions the total cost of pensions as compared with 12 months ago.—Capt. CRAIG (Parliamentary Secretary to the Ministry of Pensions) replied : Excluding the cost of administration, the total expenditure of the Ministry for the year ending March 31st, 1923, was approximately £76,500,000, as compared with the estimated expenditure of £70,000,000 for the present financial year, a decrease of £6,500,000, or 8½ per cent. The cost of administration (including that of medical services) will, it is expected, have fallen from £4,241,600 for the year ending March 31st, 1923, to £3,598,000 for the current year, a decrease of over £640,000, or nearly 16 per cent.

Venereal Disease.

Capt. ARTHUR EVANS asked the Minister of Health whether Clause 16 of the Trevethin report, dealing with the expenditure of money for reducing venereal disease, had yet been considered by the Government ; whether the question of Government financial assistance to the work of voluntary organisations had been decided ; and whether, in view of the fact that the Society for the Prevention of Venereal Disease and the National Council for Combating Venereal Diseases had both unconditionally accepted the Trevethin report, and had met in conference and had determined on joint action for giving effect to its recommendations, he would cause the maximum grant, which was to be made by the Government, to be divided in an equitable proportion between the two organisations.—Sir W. JOYNSON-HICKS replied : The answer to the first two parts of the question is that the recommendations in the Trevethin report, including the question of financial assistance from the Exchequer to the work of voluntary organisations, are now under consideration by the Government. As regards the third part, I am not yet in a position to say how any Government grant for this purpose will be allocated.

Supplies of Calf Lymph.

Mr. BARKER asked the Minister of Health if he was aware that private medical practitioners were experiencing difficulty in obtaining supplies of glycerinated calf lymph of the same guaranteed purity as that supplied to public vaccinators by the Ministry of Health ; and would he take steps to see that such lymph was procurable at a reasonable charge by private medical practitioners from Government sources.—Sir W. JOYNSON-HICKS replied : As regards the first part of the question, I am advised that there is no difficulty in obtaining from reputable firms supplies of glycerinated calf lymph of reliable quality. The action suggested in the second part of the question would involve a large and costly extension of the present Government supply, for which, as at present advised, I see no need.

Fire at Highbury Hospital.

Mr. WILLIAM M. ADAMSON asked the Minister of Pensions whether the committee of inquiry had yet reported on the origin of the disastrous fire at Highbury Hospital ; when the report would be available for Members of the House and the public ; and what compensation had been awarded to the unfortunate sufferers and to the relatives of the two men who lost their lives.—Capt. CRAIG replied : The report was printed in September and is on sale. In the case of the two men who unhappily lost their lives, entitlement to pension on behalf of their dependents has been admitted on the same basis as if death had occurred on service. All necessary medical treatment and attention has been provided for those who were injured. Two of these are still under treatment, and I am glad to say they are progressing satisfactorily.

Insanity.

Mr. BARKER asked the Minister of Health if he had received a copy of a resolution passed in August last by the guardians of the Bedwellty Union deploring the growing increase of insanity, imbecility, and epilepsy, which had become a serious menace to the national health ; and would he take measures for the eradication of these diseases by means of research work for the causes, prevention, and possible cure by propaganda similar to that carried out for tuberculosis, syphilis, &c.—Sir W. JOYNSON-HICKS replied : I have received a copy of the resolution referred to. While I concur in the view that insanity seriously affects the national health, I would point out that the incidence of insanity is not increasing out of proportion to the growth of population. Research into the causes of mental disorder is recognised as one of the first essentials if the possibilities of prevention and cure are to be fully explored. The question of propaganda, however, in regard to mental disorder presents special difficulties which would require further consideration before I could make any promise in the matter.

State of Public Health.

Capt. AINSWORTH asked the Minister of Health whether from the latest official statistics he could indicate the present state of the public health ; and whether there was any abnormal sickness of any sort being dealt with under the National Health Insurance Fund.—Sir W. JOYNSON-HICKS replied : As regards the first part of the question, I would refer the hon. and gallant Member to the report of the Chief Medical Officer of the Ministry of Health on the state of public health, which was issued in September. As regards the second part, the figures at present available show a lower expenditure on sickness and disablement benefits in the first three-quarters of the present year than in the corresponding period of 1922, and the total expenditure on those benefits is within the actuarial estimate.

The Tuberculosis Order, 1914.

Mr. F. HALL asked the Minister of Health whether he had received resolutions from local authorities urging that the Tuberculosis Order of 1914, which was suspended during the war, should be put into operation without further delay ; and whether he proposed to take the action desired.—Major BARNSTON (Treasurer of the Household) replied : The reply to the first part is in the affirmative. My right hon. friend would explain, however, that the cost of putting into operation the Order in question is estimated at £80,000 from the Exchequer and about twice that sum from local authorities. In the present financial stringency the Ministry would not feel justified in reviving the Order in view of the small number of local authorities who have expressed their wish for its reimposition.

Medical News.

University of London.—At examinations held recently the following candidates were successful :—

Third (M.B., B.S.) Examination for Medical Degrees.

Honours.—Susanna M. Bernard (*e*), London Sch. of Med. for Women ; Joan O. Geldard (*d*), Univ. Coll. Hosp. ; David Krestin (*a*, *d*), London Hosp. ; David Levi (*d*), St. Mary's Hosp. ; Alan A. Moncrieff (*a*, *d*, University Medal), Middlesex Hosp. ; Andrew J. Morland (*a*), Univ. Coll. Hosp. ; Eileen M. Saxton (*e*), St. Mary's Hosp. ; Ernest F. Smith (*e*), St. Thomas's Hosp. ; and Selwyn E. Tanner (*a*), Univ. Coll. Hosp.

(*a*) Distinguished in Medicine. (*d*) Distinguished in Surgery. (*e*) Distinguished in Midwifery.

Pass.—Edith I. L. Abbott, Univ. Coll. Hosp. ; Kathleen Ardell, London Sch. of Med. for Women ; John V. Armstrong, St. Mary's Hosp. ; Jessie H. Baxter, Univ. Coll. Hosp. ; Davis E. Bedford, Middlesex Hosp. ; Anthony Blackstock, King's Coll. Hosp. ; Kathleen N. Blomfield, London Sch. of Med. for Women ; Hilda A. Bond, Univ. Coll. Hosp. ; Frank Brockington, King's Coll. Hosp. ; Ellinor M. Burnett, London Sch. of Med. for Women ; James C. Churcher, St. Thomas's Hosp. ; Ronald S. Coldrey, St. Bart.'s Hosp. ; Gladys M. Cox and Helen I. Davies, London Sch. of Med. for Women ; Mary L. Davies, St. Mary's Hosp. ; Winifred Ealand, London Sch. of Med. for Women ; Harold C. Edwards, King's Coll. Hosp. ; Guy W. Elkington, Guy's Hosp. ; Mary E. Fox, London Sch. of Med. for Women and St. Mary's Hosp. ; Arthur W. Gott, Leeds University ; Dorothy E. Gray, London Sch. of Med. for Women ; Margaret C. N. Hadley, London Hosp. ; Theodore Handel, King's Coll. Hosp. ; Gladys Hill, London Sch. of Med. for Women ; Lydia M. Houghton, Bristol University ; Laura M. Jacobs, London Sch. of Med. for Women and St. Mary's Hosp. ; Archibald L. P. Jeffery, St. Thomas's Hosp. ; Leslie M. Jennings, St. Bart.'s Hosp. ; Harry V. M. Jones, St. Thomas's Hosp. ; Percy T. Jones, Univ. Coll. Hosp. ; Georges Klionsky, St. Bart.'s Hosp. ; Colin P. Ledward, Univ. Coll. Hosp. ; Mary A. Leslie-Smith, St. Mary's Hosp. ; Dorothy N. L. Leverkus, London Sch. of Med. for Women ; John H. M. Lloyd and Desmond M. MacManus, Guy's Hosp. ; Caroline A. Meade and Margaret S. Mills, London Sch. of Med. for Women ; William E. M. Mitchell, St. Bart.'s Hosp. ; David C. Muir, Middlesex Hosp. ; Albert B. Nutt, Sheffield University ; Judith E. M. Ormerod, London Sch. of Med. for Women ; Beryl Palmer-Jones, Univ. Coll., Cardiff, and King's Coll. Hosp. ; Emily C. N. Paterson, King's Coll. Hosp. ; Thomas V. Pearce, St. Thomas's Hosp. ; Ruth W. Plimsoll, St. Mary's Hosp. ; Eric D. Pridie, Liverpool University ; Margaret A. Quine, King's Coll. Hosp. ; Walter M. Ramsden, Guy's Hosp. ; Isabella McDougall Robertson, London Sch. of Med. for Women and St. George's Hosp. ; Morris Robinson, Univ. Coll. Hosp. ; Olive M. Salmon, St. Mary's Hosp. ; Agnes B. Smith, King's Coll. Hosp. ; Edith E. Stephens and Ella M. Stratton, London Sch. of Med. for Women ; Ralph S. Swindell, London Hosp. ; Ida M. Tancock, London Sch. of Med. for Women ; Joseph Whitby, Middlesex Hosp. ; James de Silva Wijeyeratne, Univ. Coll. Hosp. ; Caroline I. Wright, Charing Cross Hosp. ; and Marguerite A. M. Xavier and Mildred M. E. Yate, London Sch. of Med. for Women.

The following students have passed in one of the two groups of subjects :—

Group I.—Muriel E. Binns and Hilda M. Cunnington, London Sch. of Med. for Women ; David J. Davies, Middlesex Hosp. ; Barbara J. Edwards, Birmingham University ; Lucy M. Elsom, King's Coll. Hosp. ; Walter S. Evans, Univ. Coll. Hosp. ; John W. Joule, St. Bart.'s Hosp. ; Duncan C. McIntosh and Kate Madders, Univ. Coll. Hosp. ; Grace H. Newell, London Sch. of Med. for Women ; Elizabeth M. Nicholson-Smith, King's Coll. Hosp. ; and Maurice L. Sutcliffe, Univ. Coll. Hosp.

Group II.—Doris K. Brown, London Sch. of Med. for Women ; Cecily D. Crosskey, Birmingham University ; Kenneth H. Deane, St. Bart.'s Hosp. ; Vincent P. De Zoysa, Ceylon Med. Coll. and Univ. Coll. Hosp. ; George F. Gibberd, Guy's Hosp. ; Stanley J. Golden, London Hosp. ; Rachel Halperin, Univ. Coll. Hosp. ; James R. Hamerton, St. Bart.'s Hosp. ; Aglionby D. Hepburn, St. Thomas's and Westminster Hosps. ; Gwynedd Hugh-Jones and Kathleen M. Hyslop, London Sch. of Med. for Women ; David J. Jones, St. Thomas's and Westminster Hosps. ; Ronald E. Lane, Guy's Hosp. ; Lewis O. Lindsay, London Hosp. ; Francis Louis, Harold J. Malkin, and Doris I. Mart, Univ. Coll. Hosp. ; Violet E. M. Mizen, London Sch. of Med. for Women ; George S. Morgan, St. Bart.'s Hosp. ; Richard M. Morris, London Hosp. ; John P. Peel, Leeds University ; Cyril S. C. Prance, St. Bart.'s Hosp. ; Phyllis M. Rex, St. Mary's Hosp. ; Harold N. Rose, St. Bart.'s Hosp. ; William H. Royal, Bristol University ; Marjorie Rushbrooke, Birmingham University ; Alan R. Rutnam, Middlesex Hosp. and Ceylon Med. Coll. ; Mary M. Sillito, London Sch. of Med. for Women; Dorothy M. Stewart, London Sch. of Med. for Women and St. Mary's Hosp. ; Doris M. Stone, London Sch. of Med. for Women ; William Thomas, London Hosp. ; Kathleen C. Vost, St. Mary's Hosp. ; Edward G. L. Walker, St. Thomas's Hosp. ; James A. Walker, St. Mary's Hosp. ; Joan F. Whitelock, Univ. Coll. Hosp. ; Emrys Williams, St. Thomas's Hosp. ; John G. Wilson, Westminster Hosp. ; Esther Wingate, London Sch. of Med. for Women ; and Edith V. Wood, London Hosp.

Society of Medical Officers of Health.—A meeting of the Naval, Military, and Air Force Hygiene Group of the Society will be held at 1, Upper Montague-street, Russell-square, W.C., on Nov. 30th, at 5 P.M., when Major-General W. W. O. Beveridge will deliver his presidential address. Any medical men who have served with His Majesty's Forces are invited to attend this meeting.

Fellowship of Medicine and Post-Graduate Medical Association.—A two weeks' intensive course will be held at the Hampstead General and North-West London Hospital, Haverstock-hill, N.W. 3, from Dec. 3rd to 15th. The course will occupy the whole of each day, and will consist of clinical demonstrations in the wards, out-patient department, &c., by the various members of the staff. Two special demonstrations will be given at the North-Western Fever Hospital, Lawn-road, Hampstead, N.W. 3, on the diagnosis and treatment of infectious fevers ; during the second week there will be four clinical demonstrations on neurological subjects at the Hospital for Epilepsy and Paralysis, Maida Vale. Dec. 11th will be devoted entirely to clinical demonstrations in the various departments of the Paddington Green Children's Hospital, W. 2. The fee for the course is 4 guineas. Copies of the syllabus, with full particulars, can be obtained from the secretary to the Fellowship of Medicine, 1, Wimpole-street, W. 1.

Royal College of Surgeons of England: Annual Meeting of Fellows and Members.—This meeting was held at the College on Nov. 15th. The attendance numbered between 40 and 50 and Sir John Bland-Sutton presided. On Dr. Wallis asking whether the number attending museum demonstrations could be published, and Dr. Collingwood asking what was the number of Fellows voting at the Council elections, the President, in reply, said that the numbers attending museum demonstrations would be published again as they had previously, while the number of Fellows voting at the Council elections was included in the report of the College. Dr. S. C. Lawrence, the secretary to the Society of Members of the College, decided not to put the questions standing in his name, to which publicity had already been given.

The first resolution was then proposed by Dr. Edwin H. T. Nash in the following words :—

> That this thirty-fifth annual meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation upon the Council of the College, which (as now constituted) only represents those Members who also hold the Fellowship ; and that it does so, in order that the constitution of the Council of the Royal College of Surgeons of England shall be in keeping with modern ideas of true representation ; further, that as the Royal College of Surgeons is composed of about 18,000 persons, of whom over 16,000 are engaged in general practice, this annual meeting requests the President and Council to consider some means whereby Members in bona fide general practice may be represented upon the Council of the College.

Dr. Nash suggested as an alternative, which was not accepted, that there should be a conference of the Council and representatives of the Society. The resolution was seconded by Dr. Redmond Roche, the President of the Society of Members of the College, who called attention to the disabilities of the Members, adding that the removal of non-registrable degrees from the Register had recently penalised practitioners in the public eye. He directed his remarks chiefly to the reasons given by the late President of the College for not acceding to the Members' claims, and with regard to the view of the Fellows he added that the Council had not tested that view for 27 years, while a questionnaire sent out by the Society had received favourable response. He alluded to the fact that this was the centenary of The Lancet, whose founder had carried his energetic protests against the management of the College in those days to a point at which Bow-street runners had to be called in to remove him from the precincts in which they stood. Dr. Vinrace, Dr. F. G. Lloyd, and others having spoken, the resolution was passed unanimously.

The second resolution, moved by Dr. H. M. Stratford and seconded by Dr. Charles Hayward, invited the President to state what in the opinion of the Council were the difficulties which prevented assent to representation on the Council of Members in general practice. Dr. Alexander Scott, Dr. Harrison, and Dr. Collingwood having spoken, the President, reading his reply, expressed his belief that the grievance of the Members could not be widely felt, or so many young men and women would not show keenness to obtain the diploma of the College, while it was open to any Member to become a Fellow by passing the required examination. He pointed out to the meeting that Fellows of the College who were in general practice had served on the Council and that part at least of the movement for a change of the constitution of the College was due to a misapprehension of the functions of the College. The meeting, which was conducted in an amicable spirit, closed with a vote of thanks to the President.

Society of Apothecaries of London. — The livery dinner will be held in the Apothecaries' Hall, Blackfriars, London, E.C., at 6.30 P.M., on Tuesday, Dec. 4th.

Small-pox in England and Wales.—During the week ended Nov. 10th 25 cases of small-pox were notified to the sanitary authorities of the following areas: Derbyshire 3 (Ripley 1, Blackwell R.D. 2); Durham 1 (Washington); Gloucestershire 10 (Gloucester 3, East Dean 7); Notts 8 (Hucknall); Yorks W. Riding 3 (Adwick-le-Street).

Manchester Radium Institute.—Owing to the increasing number of patients applying for treatment the executive committee has decided to expend £3000 in the purchase of more radium, which will bring the total sum expended on radium by the Institute to £40,000.

Royal Society of Medicine.—On Nov. 27th, at 5.30 P.M., a combined meeting of the Medical and Surgical Sections will be held in the Barnes Hall, 1, Wimpole-street, W. 1, to discuss the Surgical Treatment of Pulmonary Tuberculosis. The discussion will be opened by Prof. P. Bull, of Christiania, who is making a special visit to this country for the purpose of this meeting. All medical men and women interested in the subject are cordially invited to attend.

International Society of Applied Psychology in Paris.—The annual reunion of the Society was held on Nov. 20th, at 49 Rue Saint-André-des-Arts, under the presidency of Dr. Ch. Fiessinger. The subjects dealt with were: (1) The relation of affectivity to psychic diseases; (2) psychotherapy of troubles of affectivity; (3) individual communications on psychotherapy and applied psychology. Dr. C. Sampson (London) read a paper on Muscular Amnesia.

University of Manchester.—The following have been elected to Honorary Research Fellowships: Mr. E. D'Arcy McCrea, M.D., F.R.C.S.I., D.P.H., in physiology (for a second year), Mrs. Gertrude Robinson, M.Sc., in chemistry, and Mr. W. K. Slater, M.Sc., in chemical physiology (for a second year). Prof. A. V. Hill has presented to the University a sum of £300 to endow a prize to be awarded for an essay on a biochemical subject.

Presentation to Sir Frederick Mott.—On his retirement from the appointment of Pathologist to the London County Mental Hospitals (1895–1923) and Director of the Laboratory at the Maudsley Hospital, Sir Frederick Mott was the recipient of a presentation from his colleagues and co-workers. The presentation, which took the form of a Chippendale bookcase, was made at the London County Hall on Nov. 15th by Mr. H. F. Keene, chief officer of the Mental Hospitals Committee, Dr. P. C. Spark, senior medical superintendent, and Dr. Herbert Bond, Commissioner of the Board of Control. An illuminated book which contained 96 names set out the presentation "as a token of their appreciation of your brilliant research work, of your efforts in connexion with the establishment of the Maudsley Hospital, and of the great assistance you have afforded to workers in the field of psychological medicine." Sir Frederick Mott remains director of the course of psychological medicine at the Maudsley Hospital, where he is still working in the laboratory. His appointment as hon. director of the Birmingham Research Board was announced not long ago.

A New Ministries' Bill in Ireland.—Our Irish correspondent writes: A Bill is at present under discussion in the Irish Parliament for the grouping of the several departments of government under the appropriate ministries. Instead of the old local government department we are to have in future a ministry of local government and public health. This ministry will have control of activities approximately similar to those controlled in England by the Ministry of Health. In it will be the Local Government Department, the National Health Insurance Commission, the office of the Inspector of Lunatics, and the Registrar-General. All these are closely connected with the care of health. The Ministry unfortunately, however, is to perform other functions which bear no relation to health. Not content with the control already exercised by the Local Government Department over fairs and markets, it is to take over the care of roads from the Ministry of Industry. It is a distinct advance that the words "Public Health" should appear in the title of the Minister responsible for the public health, for it emphasises the importance of this part of his duties, both to him and to the public. Again, while it is satisfactory to leave the various activities concerned with health concentrated in one Ministry, it is unfortunate that that Ministry should be distracted by affairs not concerned with health. It is somewhat amusing that the Irish Public Health Council—the body founded to advise the Chief Secretary in his capacity as Minister of Health for Ireland—has been forgotten altogether in this fresh grouping of departments.

Sanitary Inspectors Examination Board.—The Board have appointed Dr. A. T. Nankivell (M.O.H., Hornsey), Dr. James Fenton (M.O.H., Kensington), Mr. C. G. E. Fletcher (Town Clerk, Islington), and Mr. Arthur J. Martin, M.Inst.C.E., to act as examiners for the Board during the year 1924.

Royal College of Physicians of Edinburgh.—At a quarterly meeting of the College held on Nov. 6th, with Sir Robert Philip, the President, in the chair, Dr. John Lindsay Boyd was elected a Fellow of the College, and Drs. W. Macrae Taylor, Robert A. Chambers, Atholl Robertson, and J. Primrose Leckie were elected Members of the College. The Hill Pattison-Struthers Bursary in Clinical Medicine was awarded to Dr. Edward R. C. Walker, the Hill Pattison-Struthers Bursary in Anatomy and Physiology to Mr. T. Duncan Gould, and the Wood Bursary to Mr. Ian A. G. L. Dick. Dr. Alexander Blackhall-Morison presented to the College a portrait of the late Sir Alexander Morison, and a baculum for the use of the Morison lecturer.

Hospital Finance in London, Liverpool, and Manchester.—In a communication to the *Manchester Guardian* of Nov. 16th Mr. F. G. D'Aeth, secretary of the Liverpool Council of Voluntary Aid, gives the following statistics showing the comparative sources of income from three large centres of population. The figures are for 113 London, 16 Liverpool, and 17 Manchester hospitals for 1922, and are based as follows:—London: All income received from the general funds of the hospitals, with the exception of the special appeal (£243,115). Liverpool: All money received during the year by the institutions as a whole (that is, general and smaller funds). The income thus includes all legacies and donations for investment. Manchester: All income received for general and special funds during the year, but excluding legacies for specific purposes and donations for investment. In each case the grants from the Voluntary Hospitals Commission are included in the figures—that is, London £146,200, Liverpool £10,964, and Manchester £12,485.

	London.	Liverpool.	Manchester
(1) Annual subscriptions	—*	£20,867	£55,469
Pc.I.	—*	7 %	20·3 %
(2) Hosp. Sat. and Sun. Fund	—*	£17,150	£14,517
Pc.I.	—*	5·8 %	5·3 %
(3) Income from investments	£505,549	£37,301	£51,476
Pc.I.	19·8 %	12·7 %	18·8 %
(4) Patients' payments	£489,717	£55,378	£34,011
Pc.I.	19·2 %	18·8 %	12·4 %
(5) Public authorities and App. Socs.	£255,446	£33,773	£38,997
Pc.I.	10·4 %	11·4 %	14·2 %
(6) Earnings (fees, &c.)	£23,928	£6987	£11,572
Pc.I.	·9 %	2·3 %	4·2 %
(7) Legacies	£172,316	£75,472	£22,312
Pc.I.	6·7 %	25·6 %	8·1 %

—* Figures not available.
Pc.I., Percentage to total income.

The Lancaster Medical Book-Club.—A dinner was given on Nov. 14th in celebration of the hundredth anniversary of the foundation of the club on Nov. 11th, 1823, about 90 members and guests being present. Mr. A. S. Barling, the President, was in the chair, and was supported by Sir Norval Helme, Prof. A. C. Seward, F.R.S., Mr. J. E. Singleton, K.C., Mr. E. W. Wingate-Saul, K.C., Canon Coates, and Dean Blundell. The original minute book was shown containing the resolution forming the club: "It is expedient to establish a society to be called the Lancaster Medical Book-Club, to consist of the gentlemen present and such other medical gentlemen resident in Lancaster as shall hereafter be elected by a majority of existing members." After the loyal toasts, Dr. W. H. Coupland proposed "The Guests," emphasising the importance of the influence of mind over matter and advocating the collaboration of the spiritual and bodily advisers. Whilst paying tribute to the research workers we must, he said, look to the general practitioner for warning of the earliest signs of disease. Mr. Singleton and Dean Blundell replied. Prof. Seward, in proposing "The Club," dealt with the relation of pure science to medicine which he described as an applied science. Every medical man ought to have a thorough grounding in science, and particularly in bio-chemistry and bio-physics. They ought to study the beginnings of life in its lowest forms. The President, in reply, gave a short history of the club which, although it retained its original name, had for more than half a century, if not from the first, been a clinical and ethical society. He epitomised medical progress since its establishment, remarking that so long as tubercle and cancer were unconquered the profession had little cause for self-admiration. All the wise men of the world had but touched the fringe of the hem of the mantle of knowledge. To take a leaf from the old minute of 1827: "The evening was spent in the greatest harmony and good order, and the company separated about 12 o'clock."

SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL.—A dinner will be given to Dr. Marie Stopes at the Hotel Cecil, London, on Tuesday, Nov. 27th, at 7.30 P.M., Sir Arbuthnot Lane presiding.

CHADWICK PUBLIC LECTURES.—In consequence of the General Election the lectures by Major Harry Barnes and Dr. A. K. Chalmers are being postponed until the New Year.

ROYAL UNITED HOSPITAL, BATH.—At the conclusion of the second series of post-graduate demonstrations held at the hospital on Saturday afternoons from Oct. 6th to Nov. 10th, the class, which comprised some 40 practitioners, chiefly from the surrounding country towns, entertained the staff to lunch and presented them with a cheque for £50 for the museum fund.

ROYAL SOCIETY OF ARTS.—A lecture will be delivered on the Effect of Sun, Sea, and Open-air in the Treatment of Disease, by Sir Henry Gauvain, medical superintendent of the Lord Mayor Treloar Cripples' Hospital, on Wednesday, Nov. 28th, at 8 P.M., in the Society's premises at John-street, Adelphi, London, W.C. Lord Dawson will preside.

THE PARLIAMENTARY ELECTION:

MEDICAL CANDIDATES.

NOMINATIONS for the General Election which takes place on Dec. 6th must be made on or before Nov. 26th, and the new Parliament will assemble on Jan. 8th. The list of medical men who sat in the recent House of Commons is as follows:—

Late Member.	*Constituency.*	*Party.*
Sir George Berry	Scottish Universities	Conservative.
Dr. W. A. Chapple	Dumfries	Liberal.
Sir John Collie	Glasgow, Partick	National Lib.
Capt. W. E. Elliot	Lanark, Lanark	Conservative.
Dr. F. E. Fremantle	Hertford, Albans	Conservative.
Dr. L. G. S. Molloy	Blackpool	Conservative.
Dr. J. E. Molson	Lincoln, Gainsborough	Conservative.
Sir Sydney Russell-Wells	London University	Conservative.
Dr. Alfred Salter	Bermondsey, West	Labour.
Dr. Thomas Watts	Manchester, Withington	Conservative.
Sir William Whitla	Queen's University, Belfast	Conservative.
Dr. J. H. Williams	Carmarthen, Llanelly	Labour.

Most of these have, we understand, signified their intention of standing again for their old constituencies. Sir John Collie and Dr. Molloy are not seeking re-election.

In addition the names of the following medical men and women have been announced as Parliamentary candidates:—

Candidate.	*Constituency.*	*Party.*
Dr. Ethel Bentham*	Islington, East	Labour.
Dr. R. Dunstan*	Birmingham, Ladywood	Labour.
Dr. M. I. Finucane	Westminster, Abbey	Liberal.
Dr. O. Gleeson	Portsmouth, North	Labour.
Dr. L. Haden Guest*	Southwark, North	Labour.
Mr. Somerville Hastings*	Reading	Labour.
Dr. G. B. Hillman	Yorks W.R., Normanton	Conservative.
Dr. H. B. Morgan*	Camberwell, North-West	Labour.
Dr. R. W. Simpson*	Newcastle-on-Tyne, North	Liberal.
Dr. E. G. Spero*	Stoke Newington	Liberal.
Dr. R. McNair Wilson*	Essex, Saffron Walden	Liberal.

An asterisk is affixed to the names of those who contested seats unsuccessfully at the General Election last year, the identical seat in each case with the exception of Mr. Hastings, who then stood for Surrey, Epsom, and Dr. Spero for Leicester, West.

The Parliamentary Elections Committee of the British Medical Association (429, Strand, London, W.C. 2) is no doubt supporting two or more candidates as at the last election, although we regret to note that Dr. H. B. Brackenbury is not standing again. The Federation of Medical and Allied Services (12, Stratford-place, London, W. 1) is also supporting medical candidates as on previous occasions and has already received several applications from such.

We may express a hope that medicine will be well represented in a House of Commons where social legislation is promised by each of the political parties.

THE SIMMINS APPEAL FUND.

THE third list of subscriptions, which we give below, brings the Fund appealed for on behalf of the children of the late Temp. Surgeon-Lieut. Alfred George Simmins to the gratifying total of over £1260. The first and second lists were published respectively in THE LANCET of April 21st and of June 2nd.

Third List of Contributions.

	£	s.	d.
Anon. (per Prof. T. B. Johnston, Guy's Hosp. Med. School)	21	0	0
Some Members of "Lloyds"	15	0	0
Members of the B.M.A. and other practitioners of Warrington (per J. B. Naden)	12	15	0
Hildred Carlill, A. F. Hurst, North London Med.-Chir. Society ..each	10	10	0
Anon. (Amara, Mesopotamia), Anon. (per Prof. Johnston), Anon. (Hong-Kong), V. P. Mondon (Tasmania) ..each	10	0	0
North Marylebone School of Mothercraft (per Mrs. G. Buckley)	9	10	0
Mary Beadon, Sir G. F. Blacker, Gilbert Chubb, Stanley Dodd, Robert Hutchison, F. Langmead, Walter Spencer, H. L. Tidy, H. C. V., R. S. Willan (an old shipmate) ..each	5	5	0
Adolphe Abrahams, Capt. Hamilton, R.N. ..each	5	0	0
G. B. Henriques	4	0	0
S. E. Dore, H. Tudor Edwards, N. S. Finzi, Dr. Gilman (Singapore), E. G. Goldie, Prof. T. B. Johnston, Dr. Livermore, A. J. M., G. T. Mullaly, J. A. Ryle, F. D. Saner, A. W. Stott ..each	3	3	0
Chas. Bolton, E. P. Poulton ..each	3	0	0
Eric Bailey, C. H. Bubb and W. A. Bulleid, R. Fenn, A. Green, J. Braxton Hicks, Montagu F. Hopson, H. Pinto Leite, Dr. Logan, F. Mauser, H. Oddy, F. C. Odling, T. H. Oliver, R. P. Rowlands, Dr. Ruzzak, D. H. de Souza, Theodore Thompson each	2	2	0
Anon. (per J. Curtis), J. C. Baker ..each	2	0	0
Drs. Rogers and Bell	1	11	6
A. E. Druitt	1	10	0
Anon., T. C. Blackwell, R. L. Crabb, Hubert Daw, J. S. Dudding, D. G. Greenfield, G. B. Good, G. W. Heckels, J. G. Jones, G. M. Kendall, H. A. Kisch, Dr. Lightwood, P. E. W. MacAdam, A. D. Marston, A. T. Scott, H. Steinbach, D. Tilbury, S.W. ..each	1	1	0
Francis Chown, A. B. de Freitas, Mrs. Sandiford each	1	0	0
Amounts under £1 total	2	0	0

The Fund Committee has recently met in order to discuss how the money shall be administered. It is now intended to close the Fund, but any members of the profession who may wish to subscribe and have not yet done so may send their contributions to the treasurer, Simmins Appeal Fund, at the Royal Northern Hospital, Holloway-road, London, N. 7.

Appointments.

FRESHWATER, D. H., M.D. Camb., M.R.C.P. Lond., has been appointed Assistant Physician to the Skin Dept., St. George's Hospital, S.W.

HENRIQUES, STELLA, M.B., Ch.B. Aberd., Assistant School Medical Officer to the Tillingham (Kent) Education Authority.

McCURRACH, ELIZABETH, M.B., C.M. Aberd., D.P.H., Surgeon to Nyasaland Church of Scotland Mission.

REID, J., L.R.C.P. & S. Edin., Assistant Medical Officer to the County Mental Hospital, Hereford.

WILSON, A. S., M.B., Ch.B. Glasg., Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 6.

Surgeons under the Factory and Workshop Acts: **FOWWEATHER, F. S.**, M.B., Ch.B. Liverp. (Ellesmere Port District); **BARKER, G. L.**, L.R.C.P. Lond., M.R.C.S. (Wainfleet); **MARTIN, J. F. G.**, (Littleport).

Vacancies.

For further information refer to the advertisement columns.

Birmingham City Hospital for Infectious Diseases, Little Bromwich.—Sen. Asst. M.O. £350.

Brighton County Borough Mental Hospital, Hayward's Heath,—First Asst. M.O. £700.

Bristol City Mental Hospital.—Med. Supt. 1000.

Canterbury, Kent County Mental Hospital, Chartham.—Asst. M.O. £350.
Cardiff Royal Infirmary.—H.S. and Cas. Surg. O. £100.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.
City of London and East London Dispensary, 40, Wilson-street, Finsbury, E.C.—Additional M.O.
Edinburgh Royal Infirmary.—Supt. £700.
Federated Malay States Hospitals.—Radiologist. £840.
Grimsby and District Hospital.—Jun. H.S. £125.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P., H.S., Cas. M.O. and Cas. S.O. Each £100.
Hampstead, Parish of St. John, New End Hospital.—Sen. and Jun. Res. Asst. M.O.'s. £250 and £150 respectively.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. £50.
Huddersfield, Bradley Wood Sanatorium, &c.—Res. M.O. £500.
King's College Hospital.—Out-patient P., &c.
Lincoln County Hospital.—Sen. H.S. £250.
London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £150.
Manchester Royal Infirmary.—Asst. Res. Surg. O. £200.
Metropolitan Hospital, Kingsland-road, E.—Asst. P.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P.
Oxford, Radcliffe Infirmary and County Hospital.—Res. Accoucheur. £120.
Prince of Wales's General Hospital, Tottenham, N.—H.S. £150.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O. and Res. Obstet. S.
Rochester, St. Bartholomew's Hospital.—H.P. £200.
Royal Free Hospital, Gray's Inn-road, W.C.—Med. Reg., Surg. Reg., and Gyn. Reg. Each £250. Cas. O. £100. H.S. (M.M.S.) and Obstet. Asst. £50 each. Also H.P., H.S., Asst. Cas. O., and Obstet. H.S.
Royal London Ophthalmic Hospital.—Six Refraction Assts. £50 each.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Hon. P.
Royal Northern Hospital, Holloway, N.—Asst. Radiologist. £150. Also Phys.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. and H.S. Each £100.
Sheffield Royal Hospital.—Asst. Cas. O. £100.
Union of South Africa Govt.—Asst. P.'s. £460.
Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Dent. S.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Hon. Asst. S. 100 guineas.
West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S. and Res. Cas. O. Each £100.
Windsor, King Edward VII. Hospital.—Jun. H.S. £140.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at Osmotherley (Yorks, North Riding), Long Sutton (Lincs), Sedbergh (Yorks, West Riding), and Redcar (Yorks, North Riding).

Births, Marriages, and Deaths.

BIRTHS.

Blair.—On Nov. 10th, at Westwood, The Park, Hull, the wife of R. Bertram Blair, M.B., F.R.C.S. Edin., of a son.
Clarke.—On Nov. 13th, at Baldwyn's Park, Bexley, the wife of Geoffrey Clarke, M.D., of a daughter.
Norman.—On Nov. 8th, at Kasauli, India, the wife of Brevet-Colonel H. H. Norman, C.B.E., R.A.M.C., of a daughter.
Peebles Brown.—On Nov. 12th, at Arncliffe, Malton, Yorkshire, the wife of Dr. D. Peebles Brown, of a daughter.
Watson.—On Nov. 16th, at Parkside, Reigate, the wife of Lieut.-Colonel J. W. Watson, I.M.S., C.I.E., Ajmer, Rajputana, of a daughter.
Woodhouse.—On Nov. 9th, at The Shrublands, Croydon, the wife of S. C. Woodhouse, M.B., M.R.C.S., of a daughter.

MARRIAGES.

Lawrence—Sandell.—On Nov. 20th, 1923, at the Church of St. Ambrose, Bournemouth, Sidney C. Lawrence, M.B., Ch.B. Birm., M.R.C.S. Eng., L.R.C.P., D.P.H. Lond., to Miss E. M. Sandell, of Devizes and Bournemouth.

DEATHS.

Beatty.—On Nov. 8th, at his residence, Merrion-square, Dublin, Wallace Beatty, M.D., F.R.C.P.I., aged 70 years.
Brookhouse.—On August 20th, at his residence, Ashby House, Tweedy-road, Bromley, Kent, Charles Turing Brookhouse, M.D., J.P., aged 76. (Delayed notice.)
James.—On Nov. 15th, at Chichester, George Thomas Brooksbank James, F.R.C.S., aged 56.
Jones.—On Nov. 16th, at The Willows, Stanford Dingley, near Reading, John Hervey Jones, M.D. London, M.R.C.S., L.R.C.P., B.Sc., aged 62. No flowers by request.
Love.—On Nov. 18th, at Upper Grosvenor-road, Tunbridge Wells, Dr. J. Duncan Love, late of Monkseaton, aged 54 years.
Teale.—On Nov. 13th, at North Grange, Headingley, Leeds, Thomas Pridgin Teale, in his 93rd year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Nov. 26th.

ODONTOLOGY: at 8 P.M.
Casual Communications:
Mr. A. T. Pitts: (1) ? Dermoid Cyst of Mandible; (2) Dentigerous Cyst apparently arising from a Supernumerary Tooth.
Discussion:
On Pyorrhœa, its Prevention and Treatment. To be opened by Mr. J. G. Turner.

Tuesday, Nov. 27th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for election to the Fellowship. (Names already circulated.)

MEDICINE AND SURGERY: at 5.30 P.M. and 8.45 P.M.
Joint Discussion:
On the Surgical Treatment of Pulmonary Tuberculosis. To be opened by Prof. P. Bull (Christiania) and Dr. Clive Riviere, followed by Mr. H. Morriston Davies, Dr. E. Beaumont, Mr. J. E. H. Roberts, Dr. S. Vere Pearson, Dr. L. S. T. Burrell, and Dr. F. G. Chandler.
Dr. Stanley Melville will show X ray photographs.

Wednesday, Nov. 28th.

COMPARATIVE MEDICINE: at 5 P.M.
Paper:
Dr. S. G. Billington: Some Unusual Methods of Culturing the Blood, with special reference to Distemper. (With lantern and microscopical slides.)

Thursday, Nov. 29th.

BALNEOLOGY AND CLIMATOLOGY: at 5 P.M.
Discussion:
On Diuresis. To be opened by the President, Dr. Charles W. Buckley
Members of the Section will dine together after the meeting (at 7.30 P.M.) at the Boulogne Restaurant, 27, Gerrard-street, Wardour-street, W. 1. Price of dinner, 10s. 6d. Those intending to dine are asked to notify the Hon. Secretary (Dr. C. F. Sonntag) not later than Monday, November 26th.

MEDICINE, THERAPEUTICS, AND PHARMACOLOGY.
Members of these Sections are cordially invited to attend and to take part in this discussion.

UROLOGY: at 8.30 P.M.
Paper:
Mr. J. Swift Joly: The Mechanism of Prostatic Retention.

Friday, Nov. 30th.

BALNEOLOGY AND CLIMATOLOGY.
The arrangements for this meeting will be announced.

Saturday, Dec. 1st.

ANÆSTHETICS: at the Medical Institute, Edmund-street, Birmingham, at 4.45 P.M.
Papers:
Dr. K. B. Pinson: The Condensation of Di-methyl Ether and its Use as an Anæsthetic Agent.
Mr. Leonard Gamgee: A Surgeon's Thoughts on Anæsthesia.
Mr. L. Kirkby Thomas will show Dr. Dott's apparatus for endotracheal anæsthesia.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
Monday, Nov. 26th.—8.30 P.M., Discussion on the Treatment of Acute Suppurative General Peritonitis. To be introduced by Mr. Sampson Handley, and followed by Mr. James Berry, Sir Cuthbert Wallace, Mr. Garnett Wright, Mr. H. W. Carson, Mr. R. P. Rowlands, Mr. V. Z. Cope, Dr. H. H. Rayner, Mr. T. H. C. Benians, and others.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C.
Friday, Nov. 23rd.—4.30 P.M., (1) Clinical Cases; (2) Pathological Specimens. 5.15 P.M., Dr. A. Knyvett Gordon: The Clinical Value of Certain Pathological Tests in Dermatology.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
Wednesday, Nov. 28th.—8 P.M., Sir Henry John Gauvain: The Effect of Sun, Sea, and Open-air in the Treatment of Disease.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE, 1, Wimpole-street, W.
Monday, Nov. 26th, to Thursday, Nov. 29th.—Lectures at Chelsea Hospital for Women, London Lock Hospital, Maudsley Hospital, Royal Westminster Ophthalmic Hospital, and the Western General Dispensary (Children's Clinic).

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Monday, Nov. 26th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 3 P.M., Mr. Simson: Diseases of Women.
Tuesday.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 3 P.M., Dr. Pernet: Skin Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simson: Gynæcological Demonstration. 2 P.M., Mr. MacDonald: Genito-Urinary Dept.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations and Wards. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY, Dec. 1st.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: OCTOBER–NOVEMBER, 1923.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Nov. 26th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Optic Atrophy: Mr. Leslie Paton.

TUESDAY, Nov. 27th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Tumours of the Spinal Cord: Mr. Armour.

THURSDAY, Nov. 29th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Demonstration of X Ray Photographs: Dr. Russell Reynolds.

FRIDAY, Nov. 30th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Demonstrations of Physical Exercises in Exercise Room.

COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.

MONDAY, Nov. 26th.—12 noon, Reactionary Changes in Central Nervous System, II.: Dr. J. Godwin Greenfield.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

Dr. J. GODWIN GREENFIELD, Dean of Medical School.

UNIVERSITY COLLEGE HOSPITAL.

WEDNESDAY, Nov. 28th.—5 P.M., Dr. Charles Singer: Early Medical Books.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

THURSDAY, Nov. 29th.—5 P.M., Mr. T. B. Davies: Diagnosis and Treatment of Antepartum Hæmorrhage.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Nov. 29th.—4 P.M., Dr. Frew: Enuresis.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

TUESDAY, Nov. 27th.—5 P.M., Dr. J. M. H. MacLeod: Leprosy.

THURSDAY.—5 P.M., Dr. W. Griffith: Erythemato-squamous Dermatoses.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

WEDNESDAY, Nov. 28th.—4 P.M., Dr. Kate Platt: Problems in Relation to Health in the Tropics.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

WEDNESDAY, Nov. 28th.—6 P.M., Fifth Lecture, Sir Robert Armstrong-Jones: Fatigue and Sleep.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION, 11, Chandos-street, Cavendish-square, W. 1.

THURSDAY, Nov. 29th.—5.15 P.M., Dr. H. Crichton Miller and Dr. H. C. Cameron: The Nervous Child (Discussion).

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES.

(At 3.30 P.M. each day.)

MONDAY, Nov. 26th.—(At the Children's Hospital.) Dr. Johnson: Paralysis of Spinal Origin.

TUESDAY.—(At the Southern Hospital.) Mr. Nuttall: The Clinical Diagnosis of Peptic Ulcer.

WEDNESDAY.—(At the Northern Hospital.) Dr. M. Bligh: The Diagnosis of Meningitis.

THURSDAY.—(At the Stanley Hospital.) Dr. Gordan Gullan: Nephritis and its Treatment.

FRIDAY.—(At the Royal Infirmary.) Mr. Kelly: Surgical Cases.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.

TUESDAY, Nov. 27th.—(At the Jessop Hospital.) 3.30 P.M., Mr. King: Symptoms and Diagnosis of Adenomyoma of the Pelvis.

FRIDAY.—(At the Royal Hospital.) 3.30 P.M., Dr. Percival Hay: Iritis.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 27th.—4.15 P.M., Mr. W. R. Douglas: Chronic Mastitis.

FRIDAY.—4.15 P.M., Prof. J. S. B. Stopford: The Sensory Pathway.

SALFORD ROYAL HOSPITAL.

(Special Course on Surgical Tuberculosis.)

THURSDAY, Nov. 29th.—4.30 P.M., Mr. R. Ollerenshaw: Joint Tuberculosis.

Notes, Comments, and Abstracts.

PROGRESS OF MEDICINE AND SURGERY IN IRELAND.*

An Abstract of the Fellowship Address delivered at the Clinical Congress of the American College of Surgeons, Chicago, on Oct. 26th, 1923,

BY SIR W. I. DE C. WHEELER, M.D. DUB.,
F.R.C.S. IREL.,
PRESIDENT, ROYAL COLLEGE OF SURGEONS IN IRELAND.

[AFTER expressing thanks and appreciation concerning his election as an honorary Fellow of the American College of Surgeons and for the high compliment of being asked to deliver the Fellowship Address, the speaker continued:—]

It is natural that we in the surgical profession in Ireland give pride of place to American surgeons deep down in our hearts. Many of the greatest of them bear Irish names; we are kinsmen, blood is thicker than water, and, furthermore, the donors and the recipients in the transfusion of the two races belong to the same group. May the members of the medical profession of the two lands be joined in brotherhood for ever in the service of mankind.

Influence of Travel.

Uppermost in my thoughts at the moment is the influence of travel, of reading, of writing, and even of speech-making, on the progress of surgery; and here I turn to the great Osler, born in Canada, adopted by America, embraced by England, and beloved by all. He refers to students who wish to have the best that the world offers. "Let me suggest," says he, "that the lines of intellectual progress are veering strongly to the West, and I predict that in the twentieth century the young English physicians will find their keenest inspiration in the land of the setting sun." He had, as we have in Ireland, "a love for the land where dreams come true; dreams of more secure reward for honest industry; dreams of freedom from the irksome restraints and conventions which have outlived their day; dreams of equality, not of the cap-in-hand apologetic kind, but frankly avowed and sincerely prized equality which makes the exceptional truckling to rank by the few a subject of hearty laughter." I have quoted the words just now of my father-in-law, who last year returned from America, after a memorable experience as the guest of the American Bar Association.

A close connexion exists between medicine and the law, and each in turn is linked up from times immemorial with literature and the church. What a combination of forces, what an irresistible army, brothers in arms defending the strongholds of science and learning, allies taking the offensive against ignorance and error.

But let us return for a moment to the question of travel, for those of us who live in a small island find it difficult to realise and to attach sufficient importance to such matters. Osler, with a great wide outlook, deplores intellectual infantilism and that disease known as Progeria, in which, as if by the touch of the wand of some malign fairy, the victim skips adolescence, maturity and manhood, and passes to senility, wrinkled and stunted, a little old man amongst his toys.

Have any of you great consultants in a big land seen cases of swelled head and writer's cramp sometimes develop from never using the pen? In small countries such conditions often run hand in hand with the ailments to which Osler refers. "Ten years of successful work in a small place may tend to make a man touchy, dogmatic, intolerant of correction, and abominably self-centred," unless he seeks inspiration and enlightenment from his brothers abroad.

Journal and Monograph versus Text-book.

Travel, reading, and writing are as sign-posts pointing the direction of the straight road which leads to scientific achievement and to legitimate success. By looking and reading we are enabled to avoid the luring and darkened pathways which, no doubt, may end for some in material possession and prosperity, but without real reward. Such pathways are also open to the medical frequenters of race meetings and saloons and to gamblers on the Stock Exchange. Progress along the straight road is not easy.

With regard to writing: I have seen men—some of them colleagues of my own in the surgical profession in Dublin—dictate without note or reference work of first importance in unsurpassed language and with little effort. To others, writing is a grind, a laborious task. Books and the printing press have accomplished wonders in helping forward the surging throng in search of truth. Journal literature and monographs are the literary rocks on which workers in medicine and surgery should be content to stand. Text-books fall by making mountains out of molehills, and persisting in the retention of unwieldy classifications and bewildering names. I have been told of students in their final academic years, who, by misdirected diligence in the lecture theatres and libraries, were left uncertain whether anaphylaxis and prophylaxis were medical terms, or the names of Russian and Grecian generals.

Medicine in Ancient Ireland.

Much of the ancient medical history of Ireland is traditional and legendary, but the people in bygone days were not devoid of literary culture. It is interesting to note that the Royal College of Surgeons in Ireland was the first modern licensing corporation in Great Britain and Ireland to admit women, and to appoint them to the highest offices in its gift. The ancient laws of Ireland, the Brehon laws, codified at the request of St. Patrick, A.D. 438, refer to the remuneration and responsibility of medical men. If one person wounded another, the aggressor not only was obliged to pay a fine to the injured one, but provide him as well with maintenance and skilled medical care. What a pity the Brehon laws are not still in force! The profession of physic passed from father to son, an Irish custom which persisted until comparatively recent times. The ancient Irish doctor was shrewd enough to travel. He found inspiration in the work of his foreign colleagues, and taught posterity an important lesson thereby. Representative Irishmen of all professions remained abroad, and were found occupying distinguished positions in the various schools of Europe.

Ancient manuscripts prove how admirably Irish physicians kept in touch with the advances of learning in continental centres; a thirst for knowledge, augmented by a keen observation of the sick under their care, brought medical and surgical science to a high pitch of perfection in the Ireland of bygone days. Towards the end of the sixteenth century progress came to a standstill. Science and art decayed; Ireland was torn by strife, no shelter for learning remained, and the old worthy position held when Egyptian, Grecian, and Roman thought dominated the world, was lost to Ireland for a time. This relapse was intensified by the failure of the Irish to grasp the revolution in learning brought about by the printing press. The art of printing was neglected until nearly 100 years after its adoption by the progressives of other lands.

This was a distressing period for Irishmen to contemplate, but soon came a reaction, and we turn over the pages of medical history to find, after 100 years, the names of Colles, Graves, Stokes, Corrigan, Butcher, Tufnell, and many others. In recent years Irish surgeons and physicians have been engaged in a heart-breaking struggle in their efforts to advance, and this brings me to the antagonism which exists between the ideals of the medical profession, on the one hand, and the ideals of politicians on the other. The term politicians does not include those great statesmen to whom the very life of liberty now, and in the past, owes its existence, nor does it apply to those unostentatious whole-souled individuals who give their lives to the public service. I use it in the broadest sense to include those whom the world would be better without.

After all, our entire outlook on life, from the time we enter the medical school until we pass on into silence, is entirely different from the view taken by politicians and their cult. Whether we are biologists or craftsmen, we try to keep on a path which takes a direction through accurate observation and logical reasoning to the goal of scientific truth. The road of political life, on the other hand, leads, through a jungle of words and sentences, to ambiguity and nowhere. Modern statecraft, to some extent, is based on the belief that the world can only assimilate small doses of truth at a time, that a big dose is poisonous and liable to kill, and that the public should be cured of their political ills by homœopathic methods. "I always hold," said Mr. Gladstone, "that politicians are the men who, as a rule, are the most difficult to comprehend."

The College of Surgeons in Ireland.

When the College of Surgeons in Ireland was born, in 1783, political upheavals were the order of the day. On recent events I need not touch, beyond this, that we in the College are trained to be optimists, and to assume that, until a patient is dead, our efforts at treatment will be rewarded by success. Our optimism extends to a profound belief in our country, and that the present ship of State will be steered into peaceful and happy channels.

Few institutions in Ireland can claim a record such as ours over 140 years. If anyone should ask me how it is that this College of ours has survived in a robust condition through all the storms and passions of the past and present, I would say because it rested content in strictly attending to its own affairs.

America has taught us the power of self-reliance; we have felt her influence, and have been stimulated by her example. I bring you, then, fraternal greetings on your tenth birthday from the medical profession in Ireland, and the hope that as one decade follows another you may continue to advance and prosper, until finally your great efforts will triumph over the diseases which are decimating mankind, and that you will be crowned by humanity itself with the laurels which belong to victory.

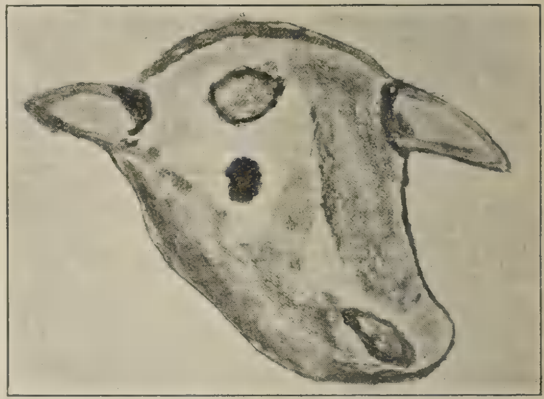
A PREHISTORIC BULL.

To the Editor of The Lancet.

" Non cuivis homini contingit adire Corinthum."

Sir,—A free translation, up-to-date, of the above Horatian verse may perhaps be allowed: "We cannot all hunt for fossils in the Gobi desert." At the same time, by means of a habit of observation useful finds may be made even in the London desert.

For about 18 months I have been watching a strange mark in a York paving-stone on Haverstock-hill, Hampstead. The wear and tear of innumerable feet has brought to light a fine section of a bovine head, showing crest, horns with their cores, one orbit, one nostril, and muzzle. The accompanying illustration is from a reduced drawing. Mr. Winter, the Hampstead Borough Engineer, has kindly had the stone removed for safety to the Town Hall. According to Prof. Geikie's geology York stone is either Permian or Triassic. Possibly human remains may be discovered in a similar deposit. I am, Sir, yours faithfully,



Vere G. Webb, M.R.C.P. Irel.

Haverstock-hill, N.W., Nov. 20th, 1923.

PUBLIC HEALTH IN ST. LUCIA.

The total population on Dec. 31st last was 53,221 (24,399 males and 28,822 females), or 228 to the square mile. The birth-rate in 1922 was 39·0 per 1000 and the death-rate 26·0 per 1000. The principal hospital, the Victoria, is situated within half a mile of Port Castries, and is in charge of a resident surgeon, who has under him a European matron and a full staff of dispensers and nurses. There were 1571 patients admitted during the year, the daily average number under treatment being 76·3. The surgical operations carried out numbered 421. There is a wing attached to the hospital known as the "Baron Ward," in which patients of the wealthier class may receive medical and surgical treatment. Extensive use is made of this ward and during the year the fees received from persons treated therein amounted to £200. Twenty-six patients were admitted to the lunatic asylum at La Toc, the daily average number in confinement being 90·2. One inmate was discharged as cured and ten died. Asylums for paupers and for persons suffering from yaws and leprosy are located in the Soufriere district under the supervision of the medical office of that district and a visiting advisory committee. The daily average number of inmates in the pauper asylum was 93. At the yaws asylum seven patients were admitted and ten discharged. The treatment by kharsivan at the outdoor dispensaries throughout the colony of persons suffering from the disease has proved so successful that it is hoped in the near future to close this hospital entirely. There were 15 patients in the leper asylum at the commencement of the year, and three were admitted; there were three deaths and no discharges. At Dennery, Soufriere, and Vieux Port there are small casualty hospitals for accident and emergency cases; 14 patients were admitted during the year to these institutions.

W. H. C.—Hartmann's pouch is an anatomical structure and is not known to have any pathological significance although it is apt to obtrude on the surgeon who is performing a cholecystectomy.

An Address
ON THE
VIS MEDICATRIX NATURÆ.

Delivered to the Medical Society of Leamington on Oct. 20th, 1923,

BY SIR FREDERICK W. MOTT, K.B.E., F.R.S., M.D., LL.D., F.R.C.P. LOND.

A RECENT visit to Leysin in Switzerland, where I saw how much could be done in the prevention and cure of disease by sunlight, pure dry air and the atmosphere of cure, has led me to select as a subject the vis medicatrix naturæ. I considered this appropriate for an address to medical men practising in a town which has long been famous as a health resort. It was Voltaire who said that doctors pour medicines of which they know little, into bodies of which they know less. Since the days when he lived medical science has made great strides, and doctors now know much more about the physiological action of drugs and of the structure and functions of the human body. Every year brings fresh discoveries of the causes of disease and of the means by which they may be prevented and cured. Medical men might now resent the dictum of Voltaire which I have quoted, but they would recognise the truth of the following principles which he laid down:—

> Régime in diet is better than medicine. Eat moderately what you know by experience you can digest, for only that which you can digest is good for the body. What is the medicine which makes you digest? Exercise. What will repair your energy? Sleep. What will lessen incurable ills? Patience. What can change a bad constitution? Nothing.

This is my text, with the benefits of sunlight and pure air added.

The body is a store of energy which is continually being discharged in the performance of vital functions and renewed during sleep. The maintenance of the balance between storage and discharge of energy under varying environmental conditions largely depends upon the inborn constitution or natural defences of the body against noxious agents from without. This inborn disposition is strengthened by a healthy regular mode of life and freedom from anxiety and worry which, by hindering digestion, assimilation, and nutrition, and by causing sleeplessness, prevents storage and recuperation of energy.

MICROBES AND DISEASE.

The germ-theory of disease initiated by Pasteur laid the foundations of modern medicine and surgery, and I was a student at University College when antiseptic surgery was introduced to London by Lister. At that time a great discussion was taking place between Pasteur and his followers with my teacher the late Dr. Charlton Bastian on spontaneous generation. Dr. Bastian showed that water in which a little hay had been boiled for some time and the flask sealed up generated bacilli, and he argued from this that spontaneous generation of the microbes had occurred. His facts were right, but his inference was wrong, for it was subsequently shown that the desiccated spores of bacilli resist boiling. This was a new fact of great practical importance, especially in regard to such diseases as tetanus and anthrax. Prof. Tyndall took part in the controversy and showed that culture-tubes could be opened in a pure atmosphere, such as at the top of the Bel Alp in Switzerland, without germs generating; because the pure atmosphere on a mountain reveals in a beam of sunlight very few floating particles, and sunlight, as shown by Downs and Blunt as early as 1877, has a powerful bactericidal action. I was much impressed by these experiments of Tyndall, reasoning that inasmuch as particles of coal dust get into the lungs and are deposited there, it was possible that germs of disease might get into the body but be continually destroyed by the natural defences. The skin and mucous surfaces of the respiratory and alimentary canals act as natural barriers against the entry of micro-organisms; still I thought that inasmuch as osteomyelitis, an infective disease, occurs without the mode of entry of the germs being known, it was possible for microbes to pass through the mucous and other barriers and get into the tissues and fluids of the body. To test this question of entry of microbes into the body during life, in conjunction with my fellow-student Victor Horsley, a number of experiments of the following nature were made: Animals were killed and their organs (for example, kidneys and spleen) were taken out under the spray, placed in pots containing boiling paraffin, and these were kept at the body temperature in an incubator. The organs were thereby cooked on the outside, nevertheless the middle parts underwent putrefaction, causing the paraffin to dome up with gases formed by the generation of micro-organisms. It could not be said that these animals were kept under hygienic conditions; and it may be assumed that at the time of their death some organisms or their spores were still in the organs undestroyed, possibly in leucocytes.

These experiments would suggest that in unhygienic environmental conditions the natural defences of the body are engaged in a continuous struggle against numbers of microbes, specific or otherwise. Consequently, if the body is invaded by a specific organism causing at first a local lesion, such as tuberculosis, the natural defences would be less available to combat the disease. For similar reasons impure air and unhygienic conditions favour secondary microbial infection by pyogenic organisms. This is the most frequent cause of fatal results in tuberculosis, influenza, scarlet fever, small-pox, &c. The importance of chronic septic infection by pyorrhœa alveolaris, by decayed teeth and stumps, or by infected tonsils cannot be over-estimated. They are a continuous drain on the natural defences of the body and act as a direct or indirect cause of many diseases.

THE BACTERICIDAL ACTION OF SUNLIGHT.

Robert Koch, in 1890, showed the great sensibility of tubercle bacilli to sunlight, and Strauss proved that two hours' exposure to light was sufficient to sterilise a culture. Sputum containing bacilli spread out on a glass plate are killed in ten minutes by the action of sunlight. The rays which kill are not in the spectrum but are in the ultra-violet rays. The freedom of the air from micro-organisms largely, therefore, depends upon sunshine, and this supports the proverb "Where the sun does not enter the doctor goes." In 1893 Finsen published his first series of experiments upon phototherapy or heliotherapy. This led to a great advance in our knowledge of the properties of light in relation to the treatment of skin diseases. Sunlight for the treatment of wounds was first employed by Bernhard of Samaden in 1902, who, having discovered the absence of putrefaction of meat when exposed to the action of the sun in a high mountain atmosphere, treated a large operation wound by exposure of the affected part to the rays of the sun. The result was so satisfactory that he was led to extend the application of sunlight to tuberculous lesions. The greatest credit is due to Dr. Rollier, who in 1903 opened the first clinic for surgical tuberculosis. Unlike Bernhard, he advocated the general sun-bath as distinct from the local sun-bath. So great was his success that in 1910 he opened his École du Soleil at Cergnat, near Leysin, for the treatment of children predisposed by enlarged glands to tuberculous infection. The principle of heliotherapy introduced by Dr. Rollier has been adopted with great success by Sir Henry Gauvain at Alton and Hayling Island, and recently in other places. Sir Henry Gauvain in a foreword to the translation of Dr. Rollier's work "Heliotherapy"[1] points out that—

> The sun's rays are the source of all vital energy, they are the great vital tonic..... Dr. Rollier, he remarks, is the high priest of the modern sun-worshipper. His work is not only a revelation, but an inspiration. His methods of treatment

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[1] Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923.

stimulate rather than supplant the efforts of Nature to defend the body against disease. Its value in preventive medicine will be increasingly appreciated after experience in its employment has been acquired. He advocates schools in the sun, insolation in the isolation hospitals, and transference of hospitals for chronic disease to sunny localities. Wherever the sun shines and the requisite skill exists for its utilisation, there insolation may be usefully employed.

From my own knowledge gained at Leysin, I can endorse all that Sir Henry Gauvain says.

Sunlight and Rickets.—Now there is a disease which is known abroad as the Englische Krankheit because of its prevalence in this country. It is rickets. We have rightly regarded improper feeding of infants as the cause of this disease (a food-deficiency disease)—lack of fat-soluble vitamins; but this is not the only cause; overcrowded dwellings where the sunlight hardly ever enters, such as are found to be the habitations of millions of our poor population dwelling in towns and cities, are as much responsible for this English disease as food deficiency. That this is so is shown by what happened to the children of Germany who suffered with rickets on account of a deficiency of animal fat, for it was found at Frankfort that a daily sun-bath (in spite of the continuance of the food deficiency) prevented the occurrence of rickets. Dr. Alfred Hess, of Columbia University, at the Home for Hebrew Infants, New York, found that the amount of phosphorus in the blood of babies rises from spring to autumn and falls from autumn to spring, whilst the incidence of rickets consentaneously falls and rises.

SUN CURE OF SURGICAL TUBERCULOSIS AT LEYSIN.

Impressed by the reported great success of the sun cure I recently took the opportunity offered to English medical men of visiting Leysin, and I attended a short course of lectures and demonstrations given by Dr. Rollier and his staff of assistants and experts. Dr. Rollier, with whom I had several conversations, told me that he was formerly an assistant of the great Swiss surgeon, Prof. Kocher of Berne, but he was obliged to leave Berne on account of his wife's health, and he had to seek a place where there was no practising doctor, but where there was plenty of sunshine and pure air. His wife made a perfect recovery and has assisted him in his great pioneer work, which he has the satisfaction of seeing rapidly spreading to all civilised countries. He told me that he had seen the failure of surgical intervention in tuberculosis of the bones, the spine, and joints, and that this had led him to try heliotherapy. He took us to the châlet where he commenced the sun treatment. This small clinic contains about 30 of the poorer class of patient, but there are now a great many clinics for all classes of patients who come from all parts of the world. The one I stayed in, "Miremont," was like a very first-rate hotel, with large sunny rooms, each with a verandah on to which the bed could be wheeled, well-furnished and appointed, and the meals, although simple, were wholesome and appetising. On the top of the building was the solarium and the patients were taken up in their beds in a lift. Concerts and broadcasting from Paris, kinematograph, and performances by the staff and some of the convalescent patients were given several nights while I was there.

Lectures and Demonstrations.—The lectures and clinical demonstrations were given by Dr. Rollier and his assistants. The expert radiologist, Dr. H. J. Schmid, showed a series of skiagrams of normal conditions of the spine, the pelvis, and bones of the limbs, followed by demonstrations of excellent skiagrams and various pathological lesions of these structures, especially of those due to tuberculosis and osteomyelitis. In the course of these demonstrations a number of skiagrams of lesions of these structures before and after treatment were exhibited.

Dr. Rollier pointed out that the whole principle of the treatment of tuberculous disease of bones and joints was to obtain a spontaneous cure. The only surgery performed was the aspiration of pus by puncture with a trocar when an abscess had formed, and this was rarely necessary. He said it was the secondary infections that did the mischief and were so difficult to combat successfully, because the suppuration, if prolonged, caused amyloid disease. In his clinical lectures he showed the mode of treatment and the results obtained both by photographs before treatment, and skiagrams taken at intervals during treatment. The patients were brought into the lecture room on movable beds. He explained and demonstrated the various devices he adopted for the extension of hip, knee, and ankle to prevent deformity while undergoing the sun cure. It was remarkable how well developed the muscles of these patients were, in spite of prolonged immobility, and he attributed this to the action of the sun's rays producing an increased flow of blood to the parts exposed. It is possible, as will be pointed out later, that energy may be absorbed by the blood and distributed over the whole body, and it is not improbable that by the stimulating action of the light the reflex tonic contraction of the muscles and their nutrition are increased.

At the clinics which I visited I saw cases of Pott's disease kept lying on their faces, and by means of supporting bags, filled first with millet seed and later with sand, spinal curvature was gradually reduced during exposure to the sun's rays. The products of inflammation are thereby absorbed, granulation tissue is formed, and calcification with fixation takes place. Many cases were shown, and X ray pictures before and after treatment exhibited. Two young girls with hip disease who had recovered, with admirable movement and able to bend hip and knee and ankle, were shown to us, and it would have been difficult from their walk to know that there had been grave disease. Dr. Rollier said he had never had a case of tuberculous ankle or wrist in which free movement had not followed treatment. Particularly interesting were some skiagrams of a case of tuberculous knee-joint before and after treatment. These skiagrams clearly demonstrated that not only were all the inflammatory products absorbed, but that new cartilages had been formed having a normal appearance. This seemed difficult to explain, and I would suggest that just as in regeneration of a nerve after section the new outgrowing fibres from the central end find their proper termination in the skin and muscle as if by an innate association cell-memory, so the undestroyed cartilage cells proliferate, and by an innate memory so dispose themselves under the stimulation of the dynamic forces of pressure, exercised in gait and station as to take on their original functions in the joint. Every stage of spondylitis and arthritis was shown in young and old and all were doing well and making for recovery. At the châlet, where Dr. Rollier first commenced the sun cure treatment, I saw an Englishwoman with tuberculous arthritis of the right shoulder with secondary microbial infection and suppuration. There were two fistulæ, besides which there was tuberculosis of both apices of the lungs. When she came to Leysin she had a swinging pyrexia and her photographs denoted misery and cachexia. Three months had elapsed, the temperature was normal, she looked, felt, and spoke as if she were a happy woman and hopeful of recovery. She had put on 9 kg. in weight, and under the healing and bactericidal influences of the sun and general improvement in health the fistulæ had healed up. Another remarkable case was one of Pott's disease in a child who came with abscess formation, prolonged suppuration, and albuminoid disease of liver and kidneys; this was treated in the usual way, but milk was the only nourishment for one year. The urine no longer contained albumin and the liver was no longer enlarged.

I saw a child that was freckled in the face and Dr. Rollier remarked that this patient would require very careful handling, as people with freckles did not pigment readily; likewise, the great difference between the skins of dark and blonde subjects must be borne in mind, as the latter are much more sensitive to sunlight and require extremely careful treatment if over-exposure is to be avoided. The experimental researches of Dr. P. Bloch point strongly to the fact that the formation of pigment must be sought in an enzyme which he shows exists in the basal cells of the epidermis. It cannot be demonstrated experimentally in the skin of an albino animal. This ferment is activated by all agents which normally produce pigmentation, the action of light being particularly striking. It is called dopa-oxydase. It may be inferred that the Mediterranean type of human beings would have relatively much more of this ferment in the cells of the rete Malpighii (where pigment is normally deposited) than the Nordic type. It is not inconceivable that the freckling of the skin may point to an admixture of unblended Mediterranean and Nordic types of skin in which the latter is, for the most part of the body surface, dominant. The vulnerable parts of the skin to the invasion of micro-organisms are the sebaceous glands and hair follicles. Acne, boils, and carbuncles are caused by infections of these structures. Sun treatment by its bactericidal action prevents the occurrence of these affections. I did not see acne in any of the patients, nor did I see it in any of the boys and girls at the École du Soleil.

I will now briefly allude to some of the general principles of technique which I saw. The method consists in beginning always with the feet and insolating both legs and arms before exposing the abdomen and thorax. By this means a general idea of the tolerance of the patient to sunlight is attained before the more vulnerable parts of the body are exposed. Short periods of exposure alternating with periods of rest—e.g., 10 to 15 minutes—make the body tolerate a much greater total amount of sunlight than would be possible with one long sun-bath, which is more fatiguing to the patient and more irritating to the skin. A series of moderate reactions three or four times a day for 15 minutes causes more rapid acclimatisation than is the case with a single bath of 30 minutes. When once, by this graduated system of exposure, the patient is pigmented all over there is no longer any danger and the patient may then have several hours of sun-bath every day.

LOCAL REACTIONS.

One effect of the sun-bath is analgesia and this is most marked in lesions of the joints and abdominal cavity. Another phenomenon of local reaction, if the lesions be at all active, is that the affected part becomes tense and uncomfortable; the treatment should then be discontinued or an acutely painful reaction will occur. When a tuberculous joint or glands are exposed there is a swelling of the part affected and a similar phenomenon, though less easily demonstrable, occurs in the region of a deep-seated abscess. In the region of the lesion sensible perspiration occurs, while the parts around remain dry. A rise of temperature in the neighbourhood of the lesion is a constant occurrence. In a patient who is already pigmented there is a difference of colour in the neighbourhood of the lesion unless there is a sinus or operation wound, then a much darker pigmentation appears in the affected region. Dr. Rollier laid great stress on free drainage. Where there is suppuration gauze was used as a dressing. Sinuses heal up and bone sequestra come away under the influence of the sun treatment.

Those who are interested in the theory and practice of this important development of the vis medicatrix naturæ should study "Heliotherapy."[1] Dr. A. Rosselet, who contributes a valuable chapter on the scientific basis of heliotherapy, comes to the following conclusion:—

> "In heliotherapy, success must not be attributed solely to the action of light, as the quality of the air breathed, and of the nutrition absorbed, with rest, are also factors of great importance. On the other hand, it would be a mistake to look upon light as merely an adjunct to those other factors determining cure." Dr. Rosselet suggests that light may be absorbed by the blood, and "the energy given out by the radiations is stored and carried in the blood-stream to every part of the body; when liberated it stimulates the intracellular processes of oxidation and reduction."

Sir William Bayliss does not apparently accept this as a proven theory. No doubt there is an unusual metabolism of the body which fully accounts for the well-developed musculature in spite of the immobility, but the stimulus of sunlight on the sensory nerve-endings in the skin would tend to induce a uniform continuous reflex tonus in the muscle.

ATMOSPHERE OF CURE.

The general sense of well-being noticed in the patients may also be due to the "atmosphere of cure" inducing faith, hope, and patience to bear their lot. The bien-être thus induced plays a very important part in the recovery by promoting digestion, assimilation, and nutrition, also natural sleep. These necessary conditions for the storage of mental and bodily energy and for improving the natural defences of the body may be seriously interfered with by impatience, discontent, and anxiety which, by staying the flow of the appetite juices, interfere with digestion, assimilation, and nutrition. Again, insomnia and unrefreshing sleep—disturbed by dreams—occur where faith and hope are absent. Depressing drugs have to be administered to produce sleep and rest, and as a consequence there is a lowering of the store of vital energy. If the sun treatment is so successful in the cure of tuberculosis why, it may be asked, should it not be adopted for the prevention? Why not treat sick patients on open verandahs in the country where pure air and sunlight can be found? Why should chronic cases be kept in large expensively constructed buildings in our large towns and cities, when they can be so easily and comfortably transported to salubrious spots in the country? These are questions to which the Ministry of Health might well give attention. Before the war I visited some of the schools in Birmingham with Mrs. Pinsent and saw an open-air school for tuberculous children; I remarked then that the children looked healthier than the children in the normal schools. Would it not be better to have all schools so constructed as to obtain the greatest amount of sunshine and fresh air? Not until we can rid get of slums and back-to-back houses in our towns and cities, where the sunlight cannot enter, and house our poor people in proper dwellings will the reproach of rickets as an English disease be undeserved.

The establishment of an "atmosphere of cure" in sanatoriums largely depends upon the brain directing and presiding over the organisation and administration. Sense of discipline, morale, and self-respect form essentials for success. The value of occupation and amusement in establishing a sense of bien-être during convalescence cannot be over-estimated as a means of strenghtening the natural defences. My experience during the war showed me how important it was to get the neurasthenic or hysteric soldier to take up some outdoor occupation in which he had an interest. This one could do by not following the usual stereotyped army methods, but by telling the soldier whatever he grew in the garden he could have, or whatever he made in the workshop would be his own property to do what he liked with. The men asked to come and do work, and were not told to come. Again, I am a great believer in the value of music, especially choral singing, as a means of producing a *joie de vivre*.

APPETISING FOOD.

Another matter of importance in establishing contentment is enjoyment of food. Of course, the old adage "hunger is the best sauce" is true, but it is customary among nearly all civilised people to take three meals a day and the pangs of hunger are therefore seldom felt in hospitals, sanatoriums, or institutions for the treatment of the mental or bodily affected, yet how little attention is given by doctors, matrons, or others in authority to find out whether the patients and nurses have *appetising* food. Wholesome food can be made appetising without an increase of cost or labour, and physiological science and clinical observations have taught us that food made appetising by its savour and flavour has a psychic effect, starting a flow of the digestive juices before the food enters the mouth. This anticipatory psychic effect is essential for the enjoyment of food, and it is not sufficiently realised what an important part the enjoyment of food plays in the production of a contented mind. Again, nothing is more conducive to discontent than when unappetising food is made more unappetising by monotony, and when the daily unappetising diet becomes a subject of contemplation. It is not only the morale and spirits of patients which suffer, but the nurses may be found affected upon particular days by contemplation of an especially unappetising meal. Again, I think that doctors and nurses should know how wholesome invalid diets are to be prepared, and how they can be made appetising without being in the least degree made unwholesome. The palate (if it is not vitiated) is a very good guide, and Voltaire was keen enough to appreciate the fact that experience tells one what is good for us and what we can digest. Now, an important matter in the establishment of an "atmosphere of cure" is the well-being, mental and physical, of the nurses. Too often they are overworked, badly paid, and indifferently fed and housed. Nothing but love for their work and hope for better things can then maintain morale, discipline, and that sympathy so essential for the well-being of the patients under their care.

SLEEP.

Sleep is a normal condition of the body occurring periodically in which there is a lessening of vital activity of all the organs of the body. But inasmuch as all vital active processes in the human body are dependent upon oxidation processes, it must be inferred that during sleep there is a diminution of processes of oxidation, as a result of which the body lies quiet with the muscles relaxed, the pulse-rate diminished, the respirations less frequent, and the person does not react to slight sensory stimuli. Secretions are less actively carried on, intestinal peristalsis is diminished, and the pupils are contracted. But the greatest effect is upon the highest level of the nervous system leading to a greater or less degree of unconsciousness. The lower subconscious and the bulbo-spinal autonomic levels are also affected but to a much less degree. It is probable that the whole of the bodily phenomena of sleep are due to a lessening of the oxidation processes at the neuronic synaptic junctions in the central nervous system, so that in deep sleep only strong stimuli or summation of stimuli can pass the synapse and result in a reaction. The waking state is associated with an awareness of alterations of the feeling continuum which is streaming in by all the sensory avenues, and this exæsthesia is integrated with the cœnæsthesia of states of feeling arising from the bones, joints, tendons, muscles, and labyrinth, the glands, and viscera.

The physiological explanation of sleep has never been satisfactory, and there is much to be said in favour of a biological explanation. Throughout organic nature there has been an association between functional activity and sunlight. Throughout the animal kingdom oxidation processes are fundamental to tissue-activity and discharge of energy under the influence of stimuli from the external world resulting in the production of fatigue products and a degree of exhaustion of potential energy which is capable of recuperation by rest. The normal conditions of sunlight and oxidation processes have been habitually juxtaposed in the evolution of the animal kingdom. While at the end of the day till dawn there is a lowering of oxidation processes in response to absence of environmental stimuli, there is a storage of potential energy. The fall in potential energy at the end of the day has in the long procession of ages been associated with a desire for sleep. This manifests itself especially by an inability to keep the eyes open and there is a feeling of fatigue in the elevators of the eyelids which tend continually to droop and shut out the light. R. Semon has shown that habit and memory are based upon the same fundamental principles. When two conditions are juxtaposed in time and place either one will revive the other. Thus if we represent C as sleep, A as night, B as a fall of potential energy and fatigue, sleep is induced habitually by either A or B. Probably B is the more important factor in determining the desire for sleep. Consequently when persons have to work by night and sleep in the daytime, they experience a fall of potential energy at the dawn and a desire for sleep in the day. We must look upon sleepiness occurring not because there is an actual exhaustion of the brain, but in order that it may not be reduced to that extremity. Every normal child, like the adult but in a less degree, possesses a store of nervous and muscular energy over and above that which it requires in ordinary conditions of life; and this statement is borne out by all the known facts, experimental and otherwise, concerning mental and bodily fatigue. The reserve energy certainly varies in amount in different individuals; it is intended only for emergencies and should not be habitually drawn upon. The sense of fatigue and the desire for sleep may be regarded as the protective and the instinctive guardians of this reserve of nervous energy. Both give warning that the reserve is about to be drawn upon, and if the warning is continually allowed to pass unheeded, exhaustion of the highest inhibitory function of the brain cortex ensues, and associative memory thus left unchecked, permits a continuous flow of ideas, resulting in mental excitement and sleeplessness. A vicious circle tends thus to become installed which, if not broken, leads to bankruptcy of nervous potential, with permanent mental irritability and lack of mental energy. A neurasthenic condition, with insomnia, is very prevalent now in highly civilised communities among young adults owing to over-pressure at school and college in competitive examinations; and quite young children of a nervous temperament, owing to parental indiscretion in their upbringing, may suffer from it. Sleeplessness of the child is a sign of nervous irritability and exhaustion, and requires careful attention lest worse evils follow. Darkness, stillness of the body, and silence favour sleep by removing the principal cause of wakefulness and activity of the mind. Habit fortunately permits sleep under the most unfavourable conditions; still, the sleep of young children must necessarily be a broken one in the single-room tenement dwellings of the poor of our large cities. This is an important unhygienic condition relating to mental development; for insufficiency of rest to the brain tends to failure of mental energy. The growing infant requires plenty of sleep; so does the growing child, and especially so when the child is suffering from bodily ill-health or nervous irritability.

I observed that neurasthenic officers and soldiers at the Maudsley Neurological Clearing Hospital during the war suffered with terrifying dreams, and all the while they lasted sleep was unrefreshing. Many neurasthenics could not recollect their dreams, but the fact that they awoke feeling less refreshed than when they went to bed indicated that they had not recuperated their nervous energy. Indeed, most neurasthenics will tell you that as the day goes on they feel better. During the battles of the Somme a considerable percentage of neurasthenic cases were sent back to England soon after they had left the battlefield. Many of them showed the aspect of fear with exophthalmia, von Graefe sign, fine tremors, and high blood pressure. These signs and symptoms persisted all the while the terrifying dreams persisted. It was probable there was an increased functional activity of the adrenal and thyroid glands in response to the emotion of fear.

I will now pass on to a brief reference to the constitution in relation to the reproductive and endocrine systems.

CONSTITUTION IN RELATION TO THE REPRODUCTIVE AND ENDOCRINE SYSTEMS.

What can change the constitution? Nothing, said Voltaire. The natural defences of the body against injury and disease are intimately bound up with and dependent upon the biochemical conditions of the blood, and the interrelation and harmonious interaction of functions of all the organs of the body by chemical messengers, especially those products of secretion of ductless glands. The fathers of medicine were accustomed to speak of the brain, the heart, and the lungs as the tripod of life. We now know that certain ductless glands—e.g., the parathyroid, adrenal, and pituitary glands—are also essential for life. The *élan vital, joie de vivre* of youth is connected with the maturation of the sex organs and the passage into the blood of a hormone which determines the secondary sexual characters and produces a complete mental revolution in youth and maid. A new instinct, the love instinct, with its sentiments and passions is aroused which energises all the organs of the body. In pregnancy there are observable structural and functional changes in the thyroid, the adrenal, and the pituitary glands. Preservation of the species under natural conditions by reproduction denotes a sufficient vital energy for self-preservation with a balance still in hand for propagation. A good animality under proper control generally indicates a good constitution and powers of vital resistance against injury and disease.

For many years past I have been studying the reproductive and endocrine glands in over 100 patients dying in hospitals and asylums, and I have come to the conclusion that certain forms of insanity are associated with a tendency to an inborn deficiency of the reproductive and endocrine systems of glands, and that some of the symptoms can be correlated with a primary regressive atrophy of these organs. There is a progressive atrophy of both the spermatogenic cells and the cells of the interstitial gland of the testis. In a considerable proportion of these cases of insanity atrophic changes of variable degree occur in the thyroid, pituitary, and adrenal glands, and it is probable that other organs such as the liver and the cells of Langerhans of the pancreas and the parathyroids would show histological changes, but I have not yet examined these organs. However, a comparative examination of the reproductive organs and the thyroid, adrenal, and pituitary glands of the cases of primary dementia whether commencing in pre-adolescence, at adolescence, or post-adolescence, compared with the same organs of an acquired mental disease, general paralysis due either to congenital or acquired syphilis, has shown that the former are inborn. For whereas pronounced histological changes from the normal were usually found in the glands of the former, as a general rule, the glands of the general paralytic showed but little departure from the normal, indeed, less than in cases dying of tuberculosis in consumption hospitals. The symptoms of the primary dementia are probably associated with and dependent upon two causes: (1) The failure of oxidative processes in the whole body due to lack of the energising influence of the ductless glands causing suppression of functions and varying states of disintegration of the psychic unity with emotional indifference. (2) Progressive pathological changes in the nucleus of the cortical cells and increase of neuroglia cells proportional to the degree of dementia. This would lead to suppression of function; whereas symptoms due to the first-named causes are capable of improvement and even disappearance with restoration of functions, the latter are irremediable.

It is legitimate to associate the low blood pressure, acrocyanosis, and katatonic stupor with a deficiency of adrenalin and failure of function of the adrenal medulla. Then a return of function of this gland might result and account for the fact that katatonic stupor may pass off and a sudden impulsive behaviour arise, or a return to a fairly normal state may in some cases happen. In the study of sections of the adrenal gland I have been particularly struck with the good development of both cortex and medulla in general paralysis as compared with the primary dementia cases. Again, I have noticed that in all cases that died of septic poisoning, and in some few cases of tuberculosis with secondary pyogenic microbial infection, the whole or nearly the whole of the lipoid content contained in the cells of the cortex has disappeared. There is reason to believe that this substance is a source of the antitoxins; some authorities, indeed, speak of this portion of the gland as antitoxic and the medulla as angiotonic. The cortex, however, has many other important vital functions especially in connexion with reproduction; not only is it of vital necessity therefore for the preservation of the species but by the production of antitoxins it is essential for the preservation of the individual against microbial poisons.

OPOTHERAPY.

I have not time to develop the subject further than to say that there is reason to believe that the vis medicatrix naturæ largely depends upon a good constitution and that a good constitution implies a proper development of the reproductive organs and the ductless glands and their harmonious interrelation. Rudyard Kipling, in a very interesting speech at the Hunterian dinner, said that the God Brahm had hidden the mystery of the man in his own body. Astrologers, alchemists, and philosophers have sought for it outside the body, and until recently psychologists had sought for it only in man's organ of intellect and reason. We are coming more and more to realise that feeling depends for its vital urge, *libido*, or *élan vital*, upon the endocrine and reproductive systems which minister to the primal instincts of self-preservation and propagation through the old involuntary nervous system. Although long hidden and overlaid by the voluntary system, its fundamental importance in relation to human character and behaviour is beginning to be recognised. Only a corner of the veil that hides the mystery of life has been raised. I cannot do better than to quote the opinion of Cannon who has done so much to advance our knowledge:—

> The known influences of these glands are so striking and so important for the welfare of the individual and the race that most naturally hope has been stirred and imagination excited to a remarkable degree. Prophets have arisen who are proclaiming a new gospel. A flare of extravagant fancy is now blazing; all the mysteries of medicine are now to be accounted for in terms of disturbed internal secretion.

When we take a careful account of our present actual knowledge we find large gaps in it; though we talk glibly of the products of these organs, only two effective substances have been isolated and analysed chemically, adrenin and thyroxin. The claims of opotherapy have been largely based upon the undoubted remarkable effects of thyroid gland obtained in myxœdema and cretinism, and recently of insulin in diabetes. Further, despite the assurance of enthusiasts we are lacking really reliable tests for disturbances in many of the endocrine glands.

Medical science is becoming more and more dependent upon natural science in its widest sense. The knowledge that an essential element of thyroxin is iodine led to the discovery that districts in Switzerland and America where goitre was prevalent was due to the insufficiency of iodine in the food and water. For it was found that the administration of small quantities of iodine or a salt of iodine led to the disappearance of this disease of the thyroid gland in the district.

I have only lightly touched upon this subject of constitution in relation to endocrine glands and the *vis medicatrix naturæ*, but I should here remark that Dr. Rollier told me that where he could feel a good thyroid development he gave a good prognosis. I would also call attention to the fact that the majority of cases of primary dementia (dementia præcox) showing regressive atrophy of the reproductive and endocrine glands die of pulmonary tuberculosis with usually secondary microbial infection. This is an indication of a low vital resistance. Cases dying in consumptive hospitals do not show such pronounced changes in the reproductive and endocrine glands as cases of dementia præcox that die from sudden death or acute disease; so that although an exhausting disease such as tuberculosis—especially where there is secondary microbial infection—is a drain on these natural defences, it does not cause the same amount of exhaustion of internal secretions as this primary genetic deficiency (dementia præcox).

Our aim as doctors should be to assist Nature's defences as far as possible, to study the advances in the knowledge of the physiological action of drugs, and the physiology of the human body.

A Post-Graduate Lecture
ON
INTRACRANIAL TUMOURS.

Recently delivered for the Fellowship of Medicine at the Royal Society of Medicine

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It is customary to include under the term "intracranial tumours" a large number of conditions which have little in common besides the slow and localised character of their development. Cysts, granulomata, chronic abscesses, and true neoplasms have all to be considered, and their inclusion is natural, since the symptoms to which they give rise are almost entirely the effect of their position and their bulk, and only by indirect inference can we conjecture their character. I propose first to touch very briefly on the tumours themselves and the conditions under which they occur, next to discuss the general symptoms to which they give rise, and then to pass on to a more detailed discussion of tumours in sites accessible to surgery.

Varieties of Tumour.

From the standpoint of the surgeon the simplest tumours are the cysts, for mere removal of the fluid will at least relieve the symptoms and may result in a permanent cure. The most important practically are those due to trauma, and those resulting from the degeneration of a glioma. Traumatic cysts arise as the result of subdural or intracerebral hæmorrhage. Their origin may date to a severe moulding of the head during labour, with a probable laceration of the dural septa, but they are a not uncommon result of accidents, sometimes of quite a trivial nature. In both cases they may remain latent for years and may then without any apparent reason commence to enlarge, producing all the symptoms of a tumour.

In a gliomatous cyst the tumour tissue may almost entirely disappear, and may even on microscopic examination be very difficult to discover. But such cysts have a strong tendency to recur, although evacuation of the cyst and the treatment of its wall by fixing reagents has in some cases resulted in long periods of relief.

Of the granulomata, those due to tubercle are the commonest intracranial tumours of childhood, whilst after 20 they are rare. They usually occur in the cerebellum and may waken to activity after a long period of latency. After a period of activity they may again recede, sometimes, unfortunately, after sight has been destroyed by the pressure they have induced. They are often associated with some degree of meningitis, and the production of a diffuse infection is one of the grave risks of their removal, unless indeed they are so substantially encapsuled as to allow of total enucleation.

Intracranial syphilis, on the other hand, is a disease of adult life. It primarily affects the meninges, especially at the base, but it may result in the production of localised tumours, the frequency of which has, however, been somewhat exaggerated by the optimism of physicians. Unless the case is quite definitely one of cerebral syphilis, a positive Wassermann reaction is no excuse for delay in exploration, when the symptoms suggest the presence of a tumour.

Around a chronic abscess there may be formed a wall so dense that even on exploration an actual tumour may be diagnosed. Such abscesses may result from tubercle, or from pyogenic organisms which have reached the brain from local bone infections, especially of the ear, or from such septic conditions of the lungs as bronchiectasis and pulmonary abscess. Every endeavour must be made to remove such an abscess en masse, for opening the abscess, even if followed by drainage, will almost invariably result in a diffuse and fatal infection.

Of true neoplasms we have four groups to consider. From the auditory nerve arise the fibromata which form the characteristic tumours of the cerebellopontine angle, as fascinating in diagnosis as they are baffling in removal. Rarely exceeding a hazel nut in size, they produce symptoms out of all proportion to their size, whilst nothing could be easier than their total removal were it not that it almost invariably costs the life of the patient. Only in tiny fragments and by slow degrees can they be successfully extirpated.

From the meninges arise the endotheliomata, the one great hope of the cerebral surgeon. They usually arise from the dura of the anterior vault, probably from the lacunæ of the superior longitudinal sinus. They may grow to a considerable size, and though they compress it they never invade the brain. On the other hand, they may invade the skull in a remarkable manner, stimulating bony growth and leading to the formation of external bony tumours. They are easily removed, they do not tend to recur, and after their removal the compressed brain may in many cases regain completely its lost function.

From the brain itself only the gliomata are known certainly to arise. They may be diffuse and infiltrate the brain till all demarcation is lost, or they may be so far encapsuled as to resemble endotheliomata, or, as already stated, they may form degeneration cysts. They never invade non-neural tissues, but from the brain itself they can never be extirpated, and they always tend to recur. They are the true malignant tumours of the brain, though only to the brain itself are they malignant.

Finally, within the cranial cavity we may find secondary tumours arising from carcinoma, melanotic sarcoma, and other growths in other regions of the body. They are only to be diagnosed in order to be avoided.

General Symptoms.

As I have already said, these tumours have little in common besides the slowness of their growth, the localised character of their development, and the similarity of the symptoms which they produce. These symptoms may be conveniently considered under three groups: General symptoms, due to interference with the brain as a whole; regional, due to interference with some special region of the brain; and local, due to interference with local nerves.

These symptoms are not directly dependent on the position of the tumour, and are essentially due to the increase in intracranial pressure which it produces. Indirectly, however, the position of the tumour is of vital importance in their production. To mere bulk the brain shows great powers of accommodation, and nothing is more astonishing than the gigantic size to which a tumour may grow unnoticed, on one condition only, that it does not interfere with the flow of cerebrospinal fluid. Continuously secreted by the choroid plexuses in the lateral ventricles, this fluid flows through the foramina of Monro to the third ventricle, whence it is conveyed by the aqueduct of Sylvius to the fourth ventricle, escaping by the foramina of Luschka and Magendie into the subarachnoid space, to be finally discharged by the Pacchionian bodies into the superior longitudinal sinus. A tumour involving the cerebral hemispheres may grow to a huge size without affecting this vital circulation. On the other hand, in the interpeduncular space, in the corpora quadrigemina, or at any point below the tentorium, even a small tumour may obstruct the flow, and, by producing a secondary hydrocephalus, may cause a sharp rise in the intracranial pressure, and with it general symptoms of the greatest severity. The contrast between supra- and infra-tentorial tumours is very largely due to this consideration alone. Above the tentorium the general symptoms are mild and surgery is comparatively easy; below the conditions are always critical, and surgical interference will only too often be fatal. By the secondary hydrocephalus the cerebellum is forced down through the foramen magnum till it forms a cone which may reach as low as the third cervical lamina, crushing beneath it the medulla and the vital centres which it contains.

These general symptoms include the classical symptoms of intracranial pressure, headache, vomiting, and papillœdema. I would insist, however, that only in a secondary sense are these the symptoms of an intracranial *tumour*, and that every effort should be made to effect a diagnosis before they arise. To wait for them is as unreasonable as to wait for acute intestinal obstruction before diagnosing a stricture of the colon. When, however, these classical symptoms occur they are of great importance and present very definite characters. The headache is constant, but with severe exacerbations. It is often severe on waking, and it is increased by anything which raises the intracranial pressure, such as exertion, excitement, or even stooping. Vomiting is also most marked on rising in the morning; it is independent of food, unaccompanied by abdominal pain, unpreceded by nausea, and therefore occurs as a sudden projectile act without warning. Papillœdema may be present in a severe degree before it becomes subjectively obvious to the patient in blurring of vision, but, as a rule, when it is at all marked, a careful examination of the visual fields will show some degree of contraction for colour and for small white objects. Transient attacks of blindness may occur, but persistent diminution of vision means that atrophy has commenced, and complete recovery of visual power is then impossible. The swelling of the disc may be accompanied by retinal hæmorrhages and is generally, though not always, most marked on the side of the lesion.

It should be noted that almost identical symptoms occur in renal disease, severe anæmia, and lead poisoning, when they are the result of cerebral œdema, which again produces an increase in the intracranial pressure. The exclusion of these conditions is, however, a simple matter. Among other general symptoms we should mention a progressive mental dullness, sometimes bordering on drowsiness, attacks of giddiness, not, however, of such sudden onset as those which occur in Ménière's disease and transient diplopia. The last may only occur once or twice and in the earliest stages, long before the onset of the classical triad of symptoms; it is very transient and may seem to the patient too trivial to mention. If, however, it really occurred it should be regarded as a symptom of the very first importance in the diagnosis of an intracranial tumour.

From this brief review of the general symptoms of intracranial tumours we must now pass on to a consideration of their regional effects. But before taking up in detail the effects of tumours in different regions let us first consider for a moment how these effects are produced. The mere pressure of a tumour on the actual cells of the brain would probably be entirely without result, were it not for the interference with the cerebral circulation by which this pressure must in practice be accompanied. It is a clearly established law of cerebral pathology, beautifully elaborated by Trotter, that congestion means irritation, and anæmia paralysis. Now the first effect of the pressure of a tumour must be interference with the venous return and congestion of the region of the brain concerned. If this happens to be the motor cortex the irritation may show itself in the production of Jacksonian fits, starting in that region of the body which the particular portion of the motor cortex supplies. As the tumour grows and the pressure increases the capillaries will be compressed, anæmia will be produced, and paralysis will replace the irritation. But as the tumour grows, in addition to an increase in the actual pressure at any one point, we have an extension of the area involved, so that in fact we shall have a spreading area of paralysis surrounded by a zone of irritation. And the whole effect is enhanced by the fact that every now and then an acute œdema may arise around the advancing tumour, increasing the general pressure and producing a dangerous exacerbation of the symptoms, sometimes the abrupt prelude of a fatal termination.

Tumours of the Rolandic Area.

The most important portion of the cerebral cortex from the point of view of intracranial tumours is undoubtedly that which lies in front of the fissure of Rolando, the precentral or ascending convolution. It differs histologically from any other portion of the cortex, since here alone are found the clusters of giant pyramidal cells of Betz, from which arise the great pyramidal tracts. It is essentially the final area through which the volitional control of the brain is conveyed to the muscles. It originates nothing, but it transmits movement formulæ for the execution of various skilled acts, the formulæ themselves being prepared by the synthetic action of other centres—visual, auditory, sensory, or psychic. It has, in addition, the important function of inhibiting muscular tone, the muscles being thus held ready for instant response to the transmitted formulæ. Its destruction, therefore, leads to a loss of volitional control and to an increase in muscular tone which hampers useful action.

In this area the different portions of the body are represented by centres arranged in a very precise manner. At the extreme upper end commence the centres for the leg, the toes and ankle being represented actually on the mesial surface of the hemisphere. Passing downwards, the knee and hip are followed by the trunk, which lies just opposite the superior genu of the fissure. Below this come in order the shoulder, elbow, wrist, fingers, and thumb. Opposite the inferior genu is the neck, and immediately below this the face, the centre for the eyelids lying close to the centre for the thumb. The tongue and larynx follow. Just in front of the hand area is a special area for the control of the conjugate movements of the eyes and rotation of the head to the opposite side.

When a tumour affects this region it gives rise to symptoms, as I have already explained, by the interference with the circulation which it produces. When the pressure is slight and only congestion results, irritation is produced; when it is more severe we have anæmia and paralysis. And inasmuch as the tumour is steadily advancing, there will usually be a zone of paralysis surrounded by a zone of irritation. The phenomena of irritation in this region have a very characteristic form, first described by Hughlings Jackson and universally known as Jacksonian fits. The characteristics of these are that they start in a precise region of the body, always the same, and that they spread to other regions in a definite order, corresponding exactly to that in which the centres are arranged in the cortex. They may be preceded by twitching or tingling in the part, and they commence with a stage of tonic spasm, passing into a series of clonic jerks. Consciousness is only lost if the convulsions become generalised. The fits may occur at any interval, from months down to minutes, and a very important feature is that they are always followed by definite weakness in the portion of the body in which the fits started.

Cortical paralysis has equally striking features. It is essentially a paralysis of movements and not of individual muscles or even muscle groups. Stimulation of the centres in the motor cortex give rise to definite movements, such as flexion of the elbow or abduction of the arm, in each of which certain muscles contract with nicely balanced force, whilst other antagonistic muscles are relaxed in suitable degree. Destruction of the centre removes from the individual the power of initiating the movement concerned, and at the same time the removal of cortical inhibition and control compels the limb to take up a characteristic attitude. Thus, in a complete hemiplegia, where the whole cortical control is removed, the arm will take up a position of adduction, with flexed elbow, pronated forearm, and flexed wrist and fingers. The leg, on the other hand, will be adducted and extended at the hip, and extended at the knee and ankle. In partial lesions other attitudes may be adopted. In all cases the paralysis will be accompanied by an increase in tone in the muscles and by an increase in the deep reflexes.

The growth of a tumour pressing on the motor area will therefore give rise to a characteristic clinical picture, Jacksonian fits followed by weakness in the region of origin, and a steadily advancing paralysis. The latter spreads as before in accordance with the arrangement of the cortical centres, and thus presents certain peculiar features. It is not uncommon, for example, for the thumb centre to be first affected. In such a case a moment's consideration of the cortical plan will show why it is that the face may be affected before the shoulder, and that it will always be involved long before the leg. On the other hand, a lesion which starts in the toe area can only spread to the arm from the shoulder downwards, and not till the hand is involved can it reach the face.

There are other curious and distinctive features of a cortical lesion, depending on the fact that certain movements are not entirely under voluntary control and may be initiated from regions other than their proper centre in the contra-lateral precentral area. Thus it is typical of a cortical paralysis of the face that the frontalis and orbicularis palpebrarum should escape. This appears to be due to the fact that in general (and in some individuals invariably) these muscles act together on the two sides and have thus obtained a bilateral cortical control. Again, in a cortical paralysis of the face, though no voluntary movement of the lower part may be possible, it may be thrown into strong contraction on emotional disturbance, such as laughing. Neither of these phenomena could occur in a paralysis due to a lesion of the facial nerve itself, and they may thus be of great value in diagnosis. Similarly in cases where the trapezius is paralysed by a cortical tumour the upper portion can often be made to contract on deep respiration, a symmetrical though voluntary act.

Immediately in front of the precentral area lies the intermediate precentral area, in which it is probable that motion formulæ are constructed and retained and that the memory for skilled acts resides. Upon its integrity depends the accurate performance of actions which we have learned by practice to execute with facility, whilst its destruction, especially on the left side, may abolish the possibility of such acts, although there may be no paralysis in the ordinary sense. Such a condition is known as motor apraxia. By far the most important example is in lesions of the posterior extremity of the left inferior frontal convolution in right-handed individuals, the area of Broca, in which is stored the memory of those movements involved in speech. The loss of this area makes voluntary speech impossible, although the individual may know exactly the words he wishes to use and may be able to look them up in a dictionary. In the involvement of the area by a tumour these symptoms are diagnostic, but the area is of further importance to a surgeon, since whenever possible he will avoid its neighbourhood and will plan his explorations so as to leave it intact.

Immediately behind the fissure of Rolando lies the post-central area, second only in importance to the motor area itself. It is essentially a sensory area and in subdivisions and extent it corresponds exactly to the motor area in front of the fissure. From this, however, it is sharply differentiated by its histological structure, for the groups of Betz cells are absent and there is an additional granular layer. Sensory tracts may be traced from cell stations in the thalamus to terminations in this area, and it forms in fact the primary cortical receiving station for sensory impulses entering consciousness. The impulses reach this area in crude form, only capable of producing indiscriminate sensations, vague and badly localised. But it is here apparently that they cross the threshold of consciousness to be analysed, compared, and refined in other areas. Injury to this area may result in a loss of postural sense, of localisation, of tactile discrimination, of the perception of the degrees of heat and cold, and it is characteristic of such lesions that this loss should be irregular in its distribution and vary in the extent to which each element is affected. This peculiar sensory loss may be accompanied by a hypotonia of the muscles in the same region, due presumably to interference with the cortical reflex arc. Irritation produces a vague tingling in the corresponding area, and such a tingling is often the precursor of a Jacksonian fit commencing in that region of the body.

Just as in front of the motor area we have an area for the preparation of complex motor acts, so immediately behind the sensory area we find an area for the elaboration of sensory impressions, in which the crude impressions received by the sensory cortex are analysed, estimated, compared, and recorded. The highest portion of this area is devoted to stereognosis, and a lesion in this region may destroy the power of recognising objects by touch, of estimating form and weight, and of recognising the position of the limbs when blindfold. It is obvious that a tumour involving this region of the brain, causing paralysis at one point and irritation at another, may set up phenomena of great complexity and produce symptoms exceedingly difficult to unravel. But a further difficulty is added by the fact that the tumour may be either extra- or intra-cerebral, and that it may thus approach the cortex either from above or from below. Furthermore, the distinction is of the utmost importance to the surgeon, for in the first case the removal of the tumour may be easy, in the second it is probably impossible. The most important distinction is to be found in the order of onset of the symptoms. In cases where the tumour is cortical, symptoms of irritation will first appear, to be followed later by paralysis. In subcortical tumours the tracts are likely to be first involved and it may be only after a paralysis of some duration that signs of irritation become evident. But the distinction is by no means constant and there is no more difficult or uncertain point in cerebral surgery than the diagnosis between a cortical and a subcortical tumour.

Certain of these points are illustrated in the following cases :—

CASE 1.—A married woman, aged 25, was referred to me by Dr. R. A. Rowlands in October, 1921. For 18 months she had suffered from occasional morning headaches which had become more severe in the last two months, being now accompanied by vomiting. Seven weeks before I saw her she had an attack of numbness in the fingers of the left hand, spreading up the arm to the shoulder and also involving the left side of the tongue. She was unable to use the hand and had difficulty in speaking. The attack lasted three or four hours. Two days later a similar attack occurred, but lasted for a longer time, and a certain degree of numbness in the tips of the left index and middle fingers had persisted ever since. She was a healthy, well-developed woman, mentally alert. Her ocular movements were normal and her vision fair, but slightly blurred for distant objects. There was severe papillœdema of both discs and weakness of the lower portion of the left side of the face. The tongue was protruded to the left. Grip and wrist extension were weak on the left side, but all other movements were normal. On the left all the deep reflexes were increased, there was an upgoing toe, and the abdominal reflex was diminished. Sense of position was defective in the fingers and thumb of the left hand. A cortical tumour of the right Rolandic area was diagnosed.

Operation.—When an osteoplastic flap over the right Rolandic area was turned down, the dura was seen to be purplish in colour and under very great pressure. On opening it a large soft tumour appeared in the upper part of the aperture. A diffluent tumour about the size of a tennis ball and purplish in colour slowly oozed out. It was not attached to the brain in any way, and as it emerged the cavity in which it had lain became completely obliterated. The tumour appeared to have arisen from the inner surface of the dura, a considerable portion of which was removed with it. The osteoplastic flap was returned, no attempt being made to close the dura. The patient made a perfect recovery and has remained well ever since. Her sight is now normal and there is no trace of papillœdema.

CASE 2.—A girl, aged 12, was referred to me by Dr. Cecil Wall in January, 1922. For 15 months she had suffered from frontal headaches, accompanied by vomiting, and lasting about 24 hours. They were followed by a sensation of numbness in her left leg. Eight months ago the numbness became more marked, and there were occasional attacks of twitching in the leg, which later spread to the trunk, arm, and face on the left side. These attacks had now become frequent, occurring at intervals of one to six days, and always preceded by numbness in the left leg, starting in

REGIONS OF IMPORTANCE IN THE LOCALISATION OF INTRACRANIAL TUMOURS.

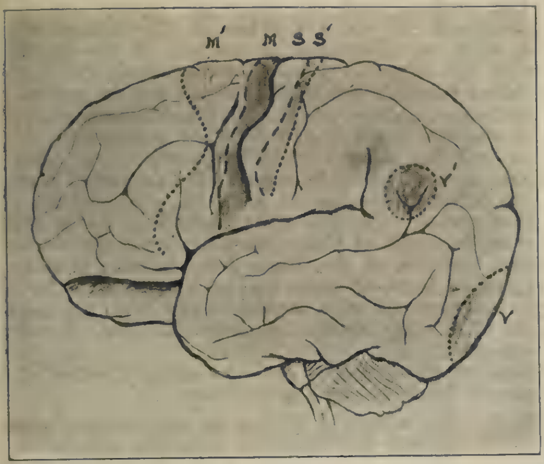

FIG. 1.—Cortex of the left cerebral hemisphere. M, Precentral area. Threshold of motor discharge. M', Intermediate precentral area. S, Postcentral area. Threshold of sensory reception. S', Intermediate postcentral area. V, Visual receptive area. V', Visual word memories.

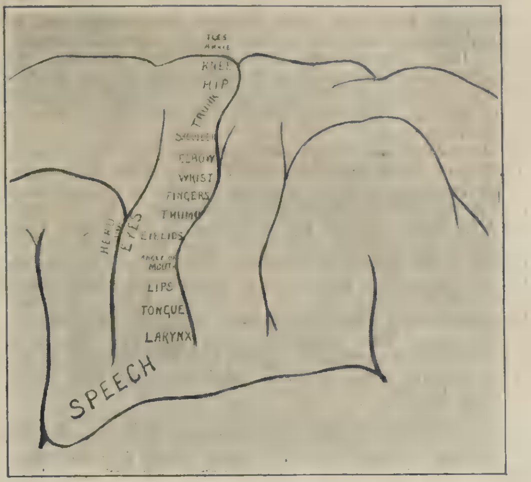

FIG. 2.—Detail of precentral area.

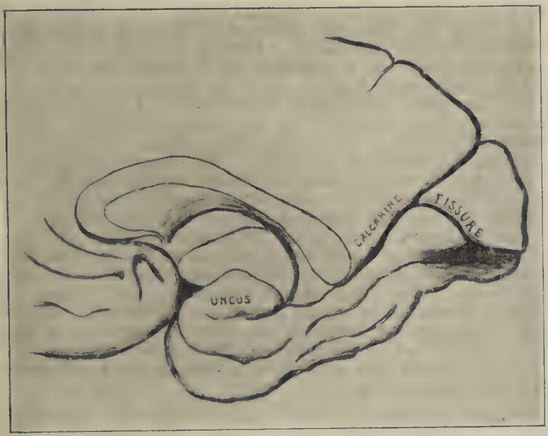

FIG. 3.—Temporal lobe and mesial aspect of occipital lobe.

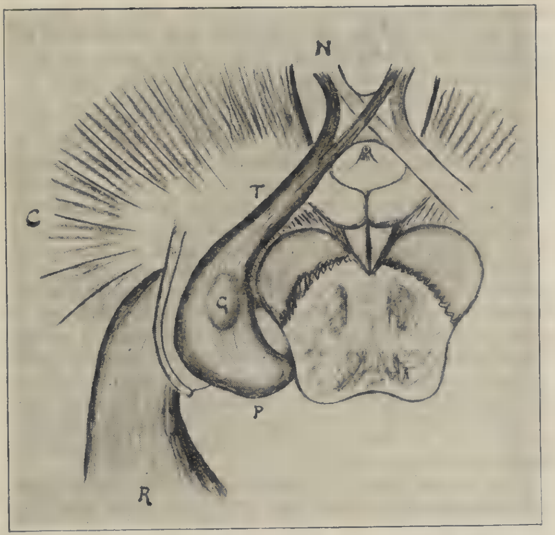

FIG. 4.—The visual path. N, Optic nerve. G, External geniculate body. R, Optic radiations. T, Optic tract. P, Pulvinar of optic thalamus. C, Internal capsule.

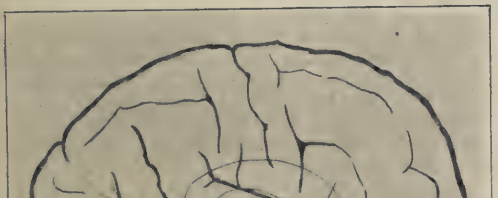

FIG. 5.—The optic radiations, showing their position in the temporal lobe and relation to lateral ventricle.

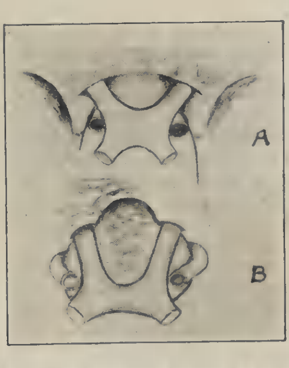

FIG. 6.—The optic chiasma from above. A, Normal. B, Distorted by pituitary tumour.

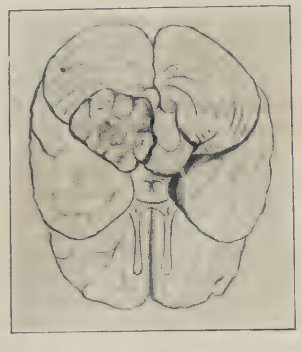

FIG. 7.—Acoustic tumour. Cruveilhier's case, after Cushing.

the toes. Since the onset of the numbness the headaches had practically disappeared. She was a well-nourished intelligent child, but dull and apathetic. She answered questions readily, but occasionally seemed to have some difficulty in understanding what was meant. The movements of the eyes were normal, but there was advanced papillœdema on both sides. There was full power in both legs, but movements were stiff and clumsy. The deep reflexes were increased on the left side, where there was also ankle clonus and an upgoing toe. The left abdominal reflex was absent. An endothelioma of the falx on the right side was diagnosed.

Operation.—A large osteoplastic flap was turned down over the right Rolandic area. The dura was found under high tension, and on opening it with a crucial incision the brain protruded under great pressure. As the consistency of the brain seemed to be firmer in the upper part of the opening an incision was made into the frontal lobe well in front of the fissure of Rolando. At a depth of three-quarters of an inch a firm tumour was discovered which proved to be an endothelioma arising from the falx. It was a firm spherical mass about the size of a golf ball, and was enucleated with ease. The operation was followed by a complete paralysis of the left arm, which, however, rapidly disappeared. The patient made a good recovery and has remained in perfect health.

TUMOURS INVOLVING THE VISUAL PATHS.

Visual sensations are conveyed to the cortex by paths so similar to those of somatic sensation that a comparison is both interesting and instructive. Sensory impulses from all parts of the body and of every kind enter the spinal cord by the posterior roots and are conveyed upwards in the various tracts. Some pass at once to the opposite side, whilst others pass up directly to the medulla and cross over in the decussation of the fillet. They then pass up through the contra-lateral crura to the ventral part of the optic thalamus and thence radiate out to the sensory post-central cortex. In a precisely similar manner visual sensations from the right and left visual fields are conveyed by paths which decussate in the optic chiasma, so that the sensations from each visual field are conveyed in the contra-lateral optic tract. Reaching the posterior pole of the optic thalamus, fresh fibres arise which radiate out to the occipital cortex around the calcarine fissure. Thus both sensation and vision enter consciousness through the cortex of the brain opposite to the side of their origin. In studying the effects of tumours upon the visual path we shall have to describe certain portions of that path in greater detail, and as it is especially at the chiasma, in the temporal lobes, and in the occipital region that accessible tumours affect the path, it is to these portions that I shall specially direct your attention.

The visual cortex is situated for the most part on the mesial aspect of the occipital lobe above and below the calcarine fissure. This fissure bears a precise relation to the visual fields, for below the fissure lies the receptive field for the lower half of the retina, above it for the upper. Thus an injury to the cortex below the fissure will affect the upper portion of the visual field, whilst the lower portion of the visual field is related to the upper cortical area. And as each occipital lobe is concerned only with the contra-lateral half of the visual field, injury to these portions of the cortex will affect only a quarter of the field, producing a quadrantic hemianopia. Such lesions have been described as the result of gunshot wounds, but it is rarely that the effects of a tumour will be so limited. In general, a tumour in this region will produce more or less complete blindness in the contra-lateral visual field.

Tumours in the occipital region may be intra- or extra-cerebral, and from the surgical point of view the distinction is an important one, as in the latter case the chances of a successful removal are far greater. The diagnosis is exceedingly difficult, but there are important considerations which may be of assistance. A cortical tumour is more likely to produce symptoms of irritation; never true pictures, for they are not stored here, but flashes of light, often coloured and suggesting fireworks. Those who are the subjects of migraine will be only too familiar with such visual effects, probably arising from vascular disturbances in the occipital cortex. As such a tumour spreads it will involve other regions of the cortex, and we may get symptoms from involvement of some portion of the sensori-motor area, such as numbness or paresis of the hand or face of the opposite side. A subcortical tumour, on the other hand, is less likely to give rise to symptoms of irritation, except in the not uncommon accident of a sudden hæmorrhage into its substance, when there will be other acute symptoms. But such a tumour is very likely to involve the posterior portion of the internal capsule at an early stage, since this is continuous with the optic radiations themselves. Now in this part of the capsule are collected at least a large portion of the fibres for common sensation, and just in front of these lie the motor fibres for the leg. Interference with sensation and with the movements of the leg on the opposite side may therefore be expected.

Some of these points are admirably illustrated in two cases described by Christiansen.

The first was a man of 41 who for three or four months had been in poor health, easily fatigued, and liable to occasional attacks of shivering. For two months he had had headaches, occipital and frontal, coming on with great violence, often at night, and accompanied by such giddiness that he once fell down. His memory had become poor. The man seemed very ill, his gait was uncertain and slightly reeling, but there was no definite incoördination nor changes in the reflexes nor in sensation. He had a definite right homonymous hemianopia. A few days later there was a slight weakness of the right face, followed in a short time by weakness of the right upper limb and early papillœdema. On exploration a large tumour was found arising from the dura mater over the left occipital lobe.

The other was that of a man of 37 in perfect health till five weeks before admission. Whilst at work he suddenly became conscious of a dazzling light before his eyes. He became giddy and fainted, and he remained unconscious for half an hour with slight convulsions of all four limbs. The attack was followed by no focal symptom, but by persistent headaches, recurring with extreme violence, and by repeated attacks of giddiness. He always thought that the first attack was coming on again, but he avoided it by lying down. For three weeks after the first attack he had diplopia, which then disappeared and did not return. He had also noticed that he could see nothing in the left visual field. He had slight left facial paresis of the central type. The left abdominal reflex was absent, and the left cremasteric reflex feeble. The other reflexes were normal. There was no loss of sensation or motor power and no ataxia. He had a left homonymous hemianopia. On exploration a large tumour was found in the right occipital lobe. It proved to be a cystic glioma and contained a large quantity of altered blood and cholesterin.

In each of these cases a large tumour developed silently. In the first it gradually gave rise to signs of general pressure, headache, and giddiness, but only at a late stage did signs of regional pressure appear. From that moment, however, they were progressive, spreading over the cortex till even the Rolandic area was affected, and hemianopia was followed by weakness in the right face and arm. In the second no symptoms arose until a sudden hæmorrhage into the substance of the tumour produced symptoms of acute cortical irritation from general pressure as shown by the convulsions, and a violent disturbance of the optic radiations, resulting in sensations of light. Had the tumour extended as deeply as the internal capsule sensory disturbances in the opposite half of the body and weakness in the opposite leg would have also appeared.

TUMOURS OF THE TEMPORAL LOBE.

Until quite recently the temporal lobe was regarded as one of the most silent portions of the brain, and tumours in this region were rarely diagnosed till a late stage. The investigations of Cushing have, however, supplied us with a syndrome of these tumours as fascinating as it is precise. Unfortunately these cases rarely present themselves till general symptoms have appeared, to mask the essential features of the syndrome. It was shown by Mayer in 1907 that the optic fibres which arise from the posterior extremity of the optic thalamus pursue a very definite course and maintain a very precise arrangement as they spread out to form the optic radiations, to end in the occipital cortex. Starting in an outward direction they flow over and around the descending horn of the lateral ventricle, passing backwards on its outer and inferior aspects. The ventral fibres thus make a long detour, whilst the dorsal reach the cortex by a shorter route, but the important point is that the two groups maintain their individuality, the ventral fibres conveying impressions from the lower portions of the retinæ and terminating below the calcarine fissure, whilst the dorsal fibres convey impressions from the upper portions of the retinæ and terminate above that fissure. But we have seen that each side of the brain is only concerned with the contra-lateral visual field. It follows that a tumour affecting the ventral part of the right temporal lobe may produce blindness in the upper left field, whilst a tumour affecting the dorsal part of the same lobe may produce blindness in the lower left field.

In the early stages, however, these defects may be only partial and can only be discovered by very accurate and minute perimetry. With the ordinary rough methods they are certain to be missed, and for this reason they have escaped notice. In later stages and with tumours far back the whole radiation will be involved and a complete hemianopia will result. If, on the other hand, the tumour is in the anterior part of the lobe the radiations may entirely escape. But even with these qualifications the sign is of the utmost value in fixing the site of a tumour hitherto obscure, and Cushing succeeded in demonstrating it in 25 out of 59 verified tumours of the temporal lobe.

The temporal syndrome includes another symptom of equal interest, occurring in those cases where a tumour affects the region of the uncus. It is a peculiar attack, lasting for a few seconds and possibly recurring many times a day. In it the patient feels dizzy, or even passes for a moment into a dreamy state, in which he may have hallucinations of smell, taste, hearing, or vision. The first two may be agreeable and may suggest scents or fruit, or intensely disgusting, in which case sucking movements of the lips and tongue may occur. The hallucinations of vision may be very extraordinary, such as a procession of black cats across the ceiling, or a little negress cooking. Occasionally a complicated scene is enacted. In any case the hallucination is always the same; it always occurs in the blind field, and it always disappears in this direction when any attempt is made to follow it. The essential symptoms of a temporal tumour are thus a quadrantic hemianopia and a form of petit mal, accompanied by peculiar hallucinations of smell, taste, or sight.

PITUITARY TUMOURS.

An entirely different type of hemianopia may be produced by tumours arising from the pituitary gland. This small gland lies immediately behind and below the optic chiasma, from which under normal conditions it is separated by the olivary eminence of the sphenoid bone. When, however, it is replaced by a tumour, this may produce a pressure before which not only the olivary eminence but the anterior clinoid processes may themselves disappear, whilst the tumour pushes forwards beneath the optic chiasma, lifting it up and stretching the optic nerves in a very remarkable manner. The pressure falls chiefly on the posterior and inferior portion of the chiasma, the precise part in which the fibres from the nasal portions of the retinæ decussate. The interference with these fibres results in blindness in the temporal fields on both sides, and we thus see how it is that *bitemporal* hemianopia is such a characteristic feature of tumours of the pituitary gland.

Occasionally the tumour may push the chiasma up in such a way as to compress its margins against the internal carotid arteries and a binasal hemianopia may result. But this is a rare occurrence. If, however, the tumour is left to grow the combined pressure on the chiasma and traction on the optic nerves will produce total blindness. Whether total or partial the blindness is accompanied by atrophy of the nerve, and the pale, shrunken disc is in striking contrast to the congested, swollen structure seen in the papillœdema which is so common a feature with other varieties of cerebral tumour.

With pituitary tumours the pressure effects are very localised, and we rarely find any indications of increase in the general intracranial pressure. From pressure on the floor of the third ventricle we may get somnolence and polyuria. Pressure on the uncus may give rise to typical uncinate fits, with the transient dreamy state and hallucinations of taste and smell. Paræsthesias in the face may arise from pressure on the fifth nerve or ocular palsies from the third. Headaches may occur, it is true, but they have a bursting character, are not accompanied by vomiting, and appear to be due to tension within the pituitary fossa, the absorption of whose walls can be readily demonstrated in an X ray photograph.

In a majority of cases pituitary tumours give rise to an entirely different group of symptoms from excess or defect in secretion. The gland consists of two portions, an anterior and a posterior lobe, each producing a secretion of vital importance, the excess or defect of which may give rise to phenomena of great complexity. Very briefly the results are as follows. Excess in the anterior lobe produces gigantism when it commences in childhood, acromegaly when it commences in adult life. Defect produces Lorraine's type of infantilism, with small body, small fine bones, asthenia, and loss of sexual characters. In the posterior lobe excess produces a high blood pressure, an excessively alert intelligence, and possibly glycosuria, whilst defect causes Fröhlich's syndrome, with excessive deposit of fat, loss of sexual characters, dull mentality, and high sugar tolerance. But even these complex syndromes rarely occur in a pure form, and the case may pass from one to another with the development of the disease.

ACOUSTIC TUMOURS.

All the tumours to which I have so far referred lie above the tentorium; as I have already mentioned, those which lie below it have very special characters to which I now wish to draw your attention. Of these tumours one of the most characteristic and important is that of the acoustic nerve. A small fibrous tumour of slow growth, it gives rise to symptoms out of all proportion to its size, whilst its removal will tax to the utmost the resources of the surgeon. These tumours are a peculiarity of the acoustic nerve, other nerves being similarly affected with extreme rarity. Their importance will be recognised from the facts that they form 6 per cent. of all intracranial tumours, that the injury they produce is purely mechanical, and that their successful removal means the complete and permanent cure of a patient who is otherwise doomed to blindness and a terrible death.

The first symptom is naturally unilateral nerve-deafness, often first noticed in using the telephone, and this may precede all other symptoms by many years. The vestibular portion of the nerve may also be affected at an early date, and giddiness may result. It is not, however, until a later stage, when the cerebellum is itself involved, that ataxia and vertigo become prominent symptoms. When they do occur they are accompanied by weakness of the lower extremity on the side of the lesion, with unsteadiness of gait and a tendency to fall to this side, and by a nystagmus with slow oscillations on looking towards the lesion. Soreness and stiffness of the neck are early features and may be due to stretching of the tentorium. Neighbouring nerves may be pressed upon or stretched, and we may find weakness of this side of the face or of the external rectus of the eye, or tingling in the distribution of the fifth nerve, with lowering of the corneal and palate reflexes on the same side. It is characteristic that all these effects should vary from time to time, whilst the deafness remains invariable.

But interesting as these symptoms are, they are trivial as compared with the general symptoms which arise as soon as the distortion of the pons has produced occlusion of the aqueduct of Sylvius and obstruction to the outflow of cerebro-spinal fluid from the ventricles. Headache, vomiting, dulling of the mental powers, and loss of vision from papillœdema may come on with a precipitancy comparable to that of the symptoms of acute intestinal obstruction, and the case may pass in a few days from one of academic interest to one of desperate emergency. The tumour actually lies in the lateral cistern of the arachnoid and is surrounded by a localised collection of fluid, a slight increase in which may at any moment determine the disaster. The pons is distorted, the aqueduct is blocked, the lateral ventricles become distended and force down the mid-brain, and the tentorium with the structures beneath it, so that the cerebellum may be driven into the spinal canal as far as the third cervical lamina, and the medulla be crushed with its vital centres.

No tumours show in sharper contrast local, regional, and general symptoms, and it is in this order that they appear. First we have the nerve-deafness of the eighth, and then the transient palsies of the seventh, sixth, and fifth nerves. Next the cerebellum is compressed and instability of gait, vertigo, and nystagmus appear. Finally, obstruction occurs and this small tumour produces all the classical symptoms of intracranial tension, headache, vomiting, and papillœdema, in an aggravated form. I have chosen it as a closing example as an epitome of the surgical pathology of cerebral tumours.

OPERATIVE TREATMENT.

A discussion of the details of operations on cerebral tumours would open too wide a field, but there is one point to which I should like to refer—namely, the use of local anæsthesia for these operations. The method is not yet in general use, but so remarkable are its advantages that I venture to think that its universal adoption can only be a matter of time. It is a very conservative statement to say that its use reduces by half the dangers and the difficulties of the surgery of the brain and spinal cord. The reasons for this will be made clear by an illustration.

CASE 3.—A man, aged 44, had suffered for some months from a steadily advancing paralysis affecting primarily the right leg, but spreading to the right arm and face, and interfering with speech. The diagnosis was made of a glioma of the left frontal lobe. Without warning he had a severe fit in which he lost consciousness and had general convulsions. This was followed by a marked increase in the spasticity and paralysis of the right side, complete loss of speech, complete paralysis of the lower face and tongue, and difficulty in swallowing. The man was very ill, but it was felt that some effort ought to be made to relieve him.

Operation.—After a preliminary injection of morphia gr. $\frac{1}{4}$ and hyoscine gr. $\frac{1}{150}$, the area of operation was anæsthetised by means of a 1 per cent. solution of novocaine, to which a small amount of adrenalin had been added. The line of incision, extending in a curve from the eyebrow to the mastoid process on the left side, was first infiltrated, then the injection was carried beneath the epicranial aponeurosis, and finally a deep injection was made into the left temporal fossa. About 100 c.cm. of solution were used. Half an hour later a very large osteoplastic flap was turned down, including the greater part of the left fronto-parietal region, four large trephine holes being joined by means of a Gigli saw. The dura was divided and a large area of brain exposed. The left frontal lobe was found to be very extensively involved by a glioma, the deeper portion of which had become cystic and had ruptured into the lateral ventricle, from which 30 c.cm. of turbid fluid full of débris were aspirated. As the brain was now under no pressure the osteoplastic flap was returned and the scalp sutured in the usual way. Throughout the whole operation the patient felt absolutely nothing, and, in fact, for the greater part of the time he was quietly asleep. Six small gauze swabs were used and one ligature (for the supraorbital artery), and the total loss of blood could not have been half an ounce. The only change was a slight quickening of the pulse-rate, which at the end of an extensive exploration lasting 50 minutes was 120, and of good volume. The patient made a steady improvement and in three weeks was almost as well as before the rupture of the cyst, walking with a little help and recovering his speech.

With local anæsthesia operations on the brain and spinal cord are practically bloodless, there is little or no shock, and the risk of respiratory troubles after the operations is minimised. During the operation there is no increase in vascularity or in intracranial pressure, such as are inevitable with general anæsthesia. The anæsthesia of the bone and of the dura appears to be absolute. The operation is conducted under conditions so ideal that, except to allow time for the extrusion of a tumour, there can rarely be any need for a two-stage procedure. The comfort of the patient afterwards is remarkable, and the attention he requires is greatly reduced. I believe that the use of local anæsthesia marks a very real advance in the surgery of the brain and spinal cord, and nowhere are its powers more remarkable or its advantages more apparent than in operations upon intracranial tumours.

A NOTE ON
MECHANICAL APEX TRACINGS.

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AT the beginning of 1923, when attending the course of cardiology at the National Hospital for Diseases of the Heart, London, I was much struck with the difference of opinion which exists with regard to mechanical apex tracings or cardiograms in France and England. I have thought, therefore, that it would be of interest to discuss the reasons why we, in France, consider that mechanical cardiography possesses a wide field of information and is of great symptomatological importance. It is not my intention in this article to compare mechanical cardiography with electrocardiography. The subject is too large and lies without the scope of the present paper. I would like to state that each has its importance and its place in cardiology and that the one supplements the other and can in no sense take its place.

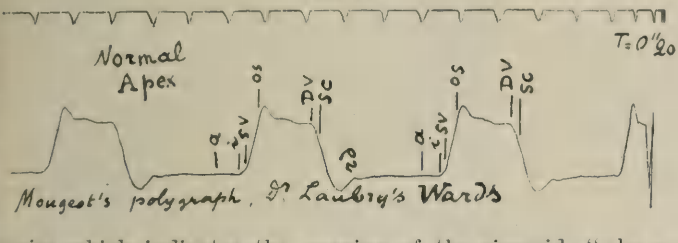
As shown by Pachon [1] in 1904, the apical tracing reproduces in an exact and faithful manner the curve of intraventricular pressure oscillations during the cardiac cycle. But, in order that this tracing may be compared or identified with the admirable curves obtained from large animals, such as the horse, by Marey and Chauveau [2] with intracardiac "sounds" or sounding pipes, by Hürtle with an elastic manometer, and by Piper with an optical pressure recorder, there is one essential condition: the patient must lie on his left side and the apex beat must be registered by means of a cardiograph with a button, lateral tube, and a screw to regulate the pressure of the button. Such a method answers the objections of Roy and Adami.[3] Care must always be taken to apply the button as accurately as possible, because, in some patients, the anatomical disposition (ribs, breast, emphysema of lungs, obesity) of the chest wall makes it difficult to obtain good contact between the impulse of the apex beat and the button of the cardiograph.

If so skilful a cardiologist as Sir James Mackenzie did not succeed in getting from apical tracings such good results as those we generally obtain, the explanation is to be found in the method employed—namely, the use of a funnel with the patients lying on their backs. This technique is wrong; the results were therefore irregular and the conclusions consequently unfavourable. It may seem very bold to differ in opinion from so great an authority as Mackenzie, whose work on the cardiac arrhythmias has so great a reputation in France as well as in England; nevertheless, I will endeavour to summarise the ideas underlying Pachon's technique and their importance in clinical work.

Pachon's Technique.

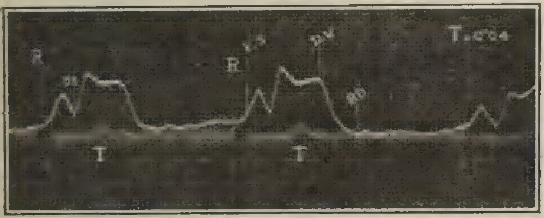
In the normal individual the apical tracings show, at the end of diastolic rest, a small elevation (*a*) which indicates the blood flow thrown into the ventricle by contraction of the auricle. Following this, a tall climb followed by a "plateau" designates the ventricular systole and shows the following details (Figs. 1 and 2). The first part (1) of the ascending line rises slowly; this is Chauveau's and Pachon's "intersystole"[4]—i.e., the preliminary contraction limited to the papillary muscle of the auriculo-ventricular valves. The massive contraction of the ventricular wall begins with the nearly vertical climb (*s.v.*) at the moment of the closure of the auriculo-ventricular valves, coinciding with the first heart sound, and continues until a half-moon shaped notch (*o.s.*), Chauveau's or Laubry and Pezzi's[5] *encoche semilunaire*, which indicates the opening of the sigmoid valves, is reached. From *v.s.* to *o.s.* the presphygmic period (*Anspannungzeit* in German, *temps de mise en tension* in French) is measured. At *o.s.* the expulsive period begins. The true beginning (*d.v.*) of the descending line marks exactly the initial point of the ventricular diastole. A notch early in the descending line marks the closing of the sigmoid valves. After the line has fallen below the abscissa corresponding to the initial point of the cardiac cycle, there is a diastolic jump (*r.d.*), Marey's *ressaut diastolique* at the moment of the opening of the auriculo-ventricular valves, and finally the line remains nearly horizontal (diastolic rest) until a new auricular wave appears and the following cardiac cycle commences.

FIG. 1.



From every point of view, in order to mark the a.c.v. undulations on jugular tracings, the cardiogram has a great superiority over the sphygmogram (Lian; Pezzi and Sabri).[6] By means of an ordinary stilette, tracings modified by a parabolic deflexion are obtained; but, registered by means of a double-jointed stilette with rectilinear movement (Mougeot)[7] or by optical projection, the true shape and character of the heart beat can be exactly figured.

FIG. 3.



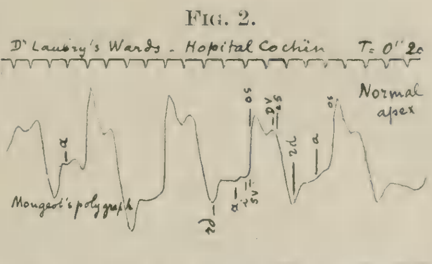
Optical registration of apex beat, combined with electrocardiogram in a case of left ventricle failure. Auricular fibrillation: *o.s.* notch extremely accentuated. Raising pressure period very long (0·36″).

Chronological Law of the Heart.

The morbid changes in the cardiogram have been studied by numerous investigators. We cannot do more than quote a few of these changes. The relative amplitude of the auricular and ventricular waves may be abnormal. In healthy subjects (*a*) is about 30 to 40 times smaller than the ventricular rise; but in gallop rhythm (*a*) is relatively much taller (Laubry and Mougeot[8]). In cases of high blood pressure, and in aortic patients, the *o.s.* notch becomes accentuated and much deeper; there is a round, vaulted shape of the systolic ventricular plateau when the overloaded ventricular muscle has difficulty in expelling its contents (Moulinié, Turlais[9, 10]). In cases of aortic regurgitation, the diastolic rest-line does not remain horizontal from *r.d.* to (*a*), but rises slowly, because the intra-ventricular pressure is increasing more rapidly before the auricular systole.

Further, numerous chronometric measurements can be obtained from apical tracings, on which we can determine easily and exactly the beginning and end of systole and diastole and divide up the presphygmic and the emptying periods of systole; thus we are enabled to reckon the duration of each part of the cardiac cycle. Normally, the ventricular diastole lasts five-eighths, or 63 per cent. to 67 per cent., of the total duration of the cardiac cycle. Such is the "chronological law" of the heart (Huchard, Gillet), which is greatly altered in morbid conditions. In most cases of tachycardia and heart muscle failure, diastole is shortened to 50 per cent. or even more of the cardiac cycle, so that both silences are of equal duration and "embryocardia" or fœtal rhythm occurs. The relative lengths of both parts in ventricular systole may be abnormal. But this point requires to be studied more in detail. If we consider the kind of work to which the different parts of ventricular systole correspond, it is possible in a cardiogram to attempt an evaluation of the functional capacity of the left ventricle and to estimate this capacity in cases of heart failure.

FIG. 2.



The Energometric Index.

The emptying period did not seem to me to be a good base for an energometric reckoning. According to Starling,[11] the formula which ought to be employed is: $W = Q\,R\,\frac{wV^2}{rg}$. The factor $\frac{wV^2}{rg}$ is negligible and the chief factors are Q (volume in c.cm. of blood expelled at each contraction) and R (the peripheral resistance). Unfortunately, in man we cannot measure accurately either the volume of expelled blood, or its velocity (V) when passing through the aortic orifice, or the exact sum of the peripheral resistances.

On the other hand, during the presphygmic period the cardiac work is purely static and consists in raising the intra-ventricular pressure from zero to a little more than the arterial diastolic pressure. With Laubry I have therefore adopted the formula, $\frac{\text{diastolic blood pressure} \times 13}{T^2}$ = energometric index, in which T is in hundredths of a second the duration of the ascending line on the cardiogram (0·10″ to 0·11″).[12] The minimal blood pressure (in cm. of mercury), taken at the arm, must be multiplied by 13, the specific gravity of mercury being about 13 times that of the blood. In normal subjects we find the energometric index to be very nearly 1. During our first experiments we found the index higher than 1 in hypertrophied hearts with good functional capacity and lower than 1 in patients with heart failure. Further researches will show us what importance can be attached to this energometric index or whether the formula must be modified.

To summarise, the apical tracing or mechanical registration of the heart beat taken by means of an adequate technique would seem to be a method of examination of great value, because it gives information concerning the cardiac contraction, the duration of each phase, the intra-ventricular pressure curve, and functional value of the heart muscle—points concerning which the electrocardiogram tells us nothing.

(*Continued at foot of next page.*)

BILHARZIASIS OF THE URETER.

By ALY BEY IBRAHIM, M.B.E.,
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Bilharziasis of the bladder has been fully observed and described by many writers, some of whom have drawn attention to the secondary effects produced on the kidneys and ureters by infiltration of the bladder wall round the ureteric openings. It is, however, far less widely recognised that, apart from the effect of bilharziasis on the bladder, there exists an infection of the ureters far more dangerous and intractable in its ultimate effects. Owing to the difficulty of observing changes in the ureter this has been very generally ignored during the life of the patients; the chief authorities on the subject devote only a few lines to it, and that chiefly from the pathological standpoint.

For many years surgeons practising in Egypt have been puzzled by the occurrence of typical cases of renal colic, in which the most careful radiographs of the kidney, ureter, and bladder have failed to show the presence of a stone. Some few of these are caused by pure uric acid calculi; occasionally one may be due to a Dietl's crisis, but the majority, probably nine out of ten, are due to bilharziasis of the ureter. In the same way most cases of hydronephrosis where no stone is found are really manifestations of the later stages of this disease and not secondary to disease of the bladder wall, to which they are so often attributed. This has been verified repeatedly on the operating table and post mortem.

I first described this condition in detail in the *Egyptian Medical Journal* in April, 1917. At that time I had met with over one hundred cases, all of which I had thoroughly examined and systematically investigated, and most of them I had followed in the different stages of the disease. When I wrote my article my object was merely to draw the attention of surgeons in Egypt to a very fatal and common form of bilharziasis which has received scanty notice in the literature. There was at that time little hope of influencing the progress of the disease. Now that bilharziasis can be successfully treated with tartar emetic, the outlook is far more hopeful, provided that cases can be recognised early. The latter point is an additional reason for drawing attention to this condition. The disease passes through three fairly definite pathological stages, each of which corresponds to a different clinical picture. It must be clearly realised that when the disease is bilateral, as it often is, two different stages may exist on different sides.

Morbid Anatomy (Figs. 1–3).

Bilharziasis of the ureter may exist apart from or in conjunction with vesical bilharziasis. It rarely affects the upper part of the ureter, the lowest 5 cm. being the site of election. Histologically the disease does not differ appreciably from bilharziasis of other organs.

Stage 1: *Infiltration with Bilharzia Ova.*—This manifests itself by the appearance of one or more of the following: (1) Sandy patches, (2) sessile infiltrations, (3) papillomata. At this stage the mucous membrane is still intact and the muscular wall in good condition. The kidney and pelvis usually appear quite normal. Occasionally a papilloma may act as a ball-valve, obstructing the flow of urine and producing in the corresponding kidney a hydronephrosis.

Stage 2: *Ulceration and Fibrosis.*—The ulceration is the result of necrosis of the mucous membrane covering the sandy patches and sessile infiltrations as well as of the falling-off of papillomata. The only mucosa left forms islets here and there, and the ulcers are covered with sloughs or incrustations of urinary salts. There is a round-celled infiltration gradually leading to fibrosis. Concomitantly with this, the muscular wall of the tube at the affected portion atrophies, being largely replaced by fibrous tissus. There is consequently a gradual narrowing of the lumen of the diseased part, and a secondary dilatation of the part above it. The pelvis of the kidney and its calyces are dilated too. The pyramidal area suffers from pressure atrophy, and eventually becomes narrower than the cortex, which does not seem to suffer until the next stage.

Stage 3: *Cicatrisation, Stricture, and Obliteration.*—The lumen of the affected part gets gradually obliterated until it is replaced by a mere solid fibrous cord. The upper part of the ureter gets more and more dilated and the kidney is eventually transformed into a fibrous sac with no remains of secreting tissue or mucosa. Such a sac contains urine or pus depending upon the absence or presence of infection. Infection, however, is a rare complication, unless the disease is accompanied by severe bilharziasis of the bladder.

Clinical Signs and Symptoms.

Stage 1.—The main symptom at this stage is renal colic, which I am inclined to attribute to the following causes: (1) Passage of blood clots produced at the lesion; (2) passage of sloughs, muco-pus, or urinary incrustations on the surface of the ulcers; and (3) passage of cast-off papillomata. The attacks last from a few hours to several days and disappear as suddenly as they start, the relief being usually accompanied by hæmaturia (with or without clots). These symptoms are repeated at variable intervals for some years, occurring at first on one side only, then they get less frequent on that side, appearing with the same intensity on the opposite side. During the attacks the kidney and ureter are tender, the latter particularly at the point of crossing the pelvic brim. Between the attacks the patient is usually in good condition, and on palpation no abnormality can be detected. The urine is usually highly acid, containing a variable amount of blood and bilharzia ova, otherwise its constituents are not altered. If the patient is cystoscoped at this stage, several papillomata may be seen on or adjacent to the ureteric opening. The opening itself will be seen contracting regularly, and the jets are strong and may be bloody. Less commonly, a large cauliflower-shaped papillomatous growth hides the opening from view. Passing the ureteric catheter is extremely difficult in all cases, since the papillomata form a sort of rampart over which the tip of the catheter slides, making accurate alignment almost impossible. The following cases illustrate this stage of the disease:—

Case 1.—Male, aged 25, complained of symptoms of renal colic, first on left side, then on right. Attacks remained six or seven hours, sometimes as long as two or three days. Urine contained albumin, red blood corpuscles, and white blood corpuscles. Bilharzia ova. X ray examination negative; cystoscopy showed bilharzial papillomata around ureteric opening; bladder otherwise normal. Symptoms improved slightly on the administration of alkalies. Condition the same six months and one and a half years afterwards. Patient then lost sight of.

Case 2.—Male, aged 19, complained of repeated attacks of renal colic on both sides. Urine contained albumin

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Mechanical Apex Tracings.—References.

(*Continued from previous page.*)

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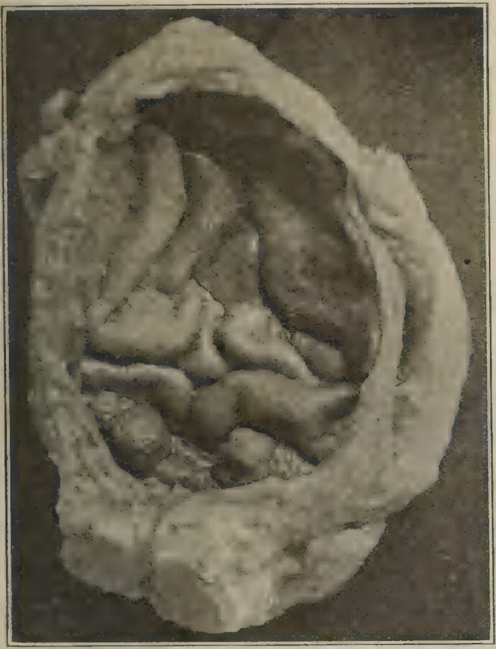
blood, and pus. X ray examination, of kidneys only, negative. Cystoscopy showed bilharzial papillomata around left ureteric opening, though jet of urine was strong. Right ureteric opening tumefied, and jet poor. Ureteric catheter could be passed up ureter only for 2 cm., and could not be passed at all up the left ureter. X ray examination of the ureters later showed a stone in ureter near bladder. Two months later patient passed a stone similar in shape and size to the shadow in the X ray plate.

FIG. 1.



Bilharziasis of ureter. Bladder (two-thirds natural size) showing two bilharzial papillomata surrounding the ureteric openings.

CASE 3.—Male, aged 27, complained of symptoms of renal colic on either side. Urine showed bilharzial ova. X ray examination negative. Cystoscopy showed bilharzial papillomata around both ureteric openings. A week later patient passed a small uric acid stone and subsequently two others.

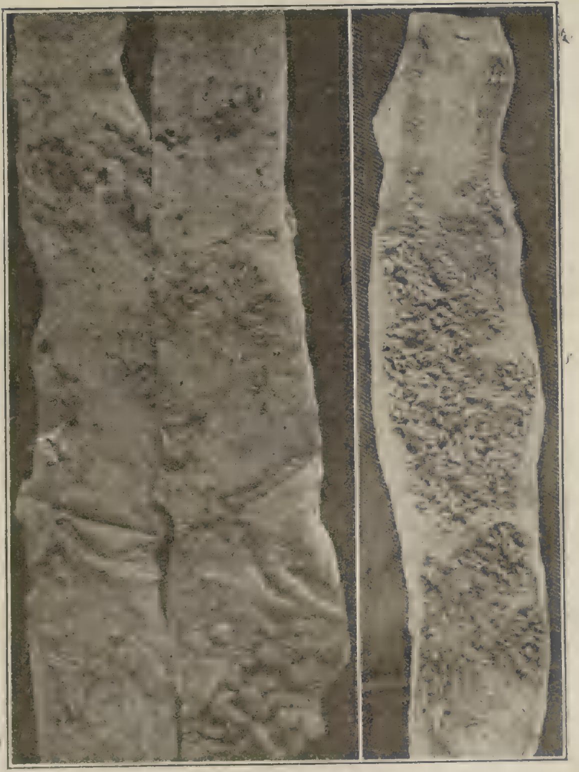
Stage 2.—The symptoms at this stage depend upon whether the urinary system is infected with bacteria or not. In non-infected cases the attacks of renal colic are replaced by a constant dragging pain in the loin which increases on any exertion. The patient becomes weak and anæmic, and complains of anorexia and headaches. On examination one or both kidneys are found enlarged and tender. If both are felt, one is usually larger than the other, the larger kidney being, as a rule, the one less affected. The total amount of urine is decreased, but every now and then the patient may pass large amounts. The specific gravity is low, 1007–1012. All constituents are diminished, urea decreasing to 8–12 g. in the 24 hours. Red and white cells are present, but tubular casts usually absent. Bilharzia ova may or may not be found. It is surprising how large numbers of cases can drag along in this state for two or three years considering their general and renal condition; one would not give them more than a few weeks to live. In infected cases the pain and tenderness are much more severe. There is an evening rise of temperature and pus is present in the urine. The patient looks much worse, loses weight very rapidly, and the final issue occurs earlier. Cystoscopy at this stage shows a patulous, immobile ureteric opening, out of which the urine flows in a continuous stream under very little pressure. Round the lips of the opening may be seen small ulcers with greyish, sloughy bases. The following cases illustrate this stage of the disease.

CASE 4.—Male, aged 60, complained of repeated attacks of renal colic during the last 12 years. Lately continuous dragging pains in both loins, general weakness, emaciation, and anorexia. Left kidney swollen and hydronephrotic. Urine: Sp. gr. 1007, urea 6 g. in 24 hours. X ray examination negative. Cystoscopy showed ulcerations and muco-purulent matter round the ureteric openings; mucous membrane of bladder in a state of chronic inflammation. Left kidney was tapped in the loin and 2 litres of fluid withdrawn. Patient was relieved after this, but returned a month later in the same condition; tapping was repeated, and 1½ litres of fluid withdrawn, but his general condition was now bad. He returned again a month later, his condition being still worse. I lost sight of him after this.

CASE 5.—Male, aged 45, complained of attacks of renal colic on either side during the last 30 years. Terminal hæmaturia. No stones passed. Seen two years later: condition then as follows: Continuous dragging pains and fullness in left lumbar region; marked weakness and anæmia and evening rise of temperature; a large, tender swelling occupying left lumbar region. Urine: Sp. gr. 1013, contained pus, urea 12 g. in 24 hours. X ray examination negative. Cystoscopy showed the mucous membrane of bladder in a state of chronic inflammation, opening of right ureter could not be seen, opening of left ureter covered up with muco-purulent matter. Diagnosis: Left pyonephrosis. Condition of right ureter could not be determined. Pyonephrosis incised from back and drained; nearly 2 litres of pus were withdrawn. Condition improved, but subsequently became worse, and he died one year later.

Stage 3.—The patient now passes into a condition of chronic uræmia. He usually comes with a huge swelling in each loin. Sometimes one or both ureters can be felt dilated, a matter of no great difficulty, as the patient is by now very much emaciated. Suddenly complete suppression sets in, and the patient succumbs two to four days later in a condition of coma. He may have a few twitchings, but convulsions are always absent. On cystoscopy one of two appearances may be recognised. Either a patulous, non-contracting ureteric opening with no

FIG. 2. FIG. 3.



Two examples of bilharziasis of ureter. Fig. 2 shows dilatation, and, in the lower part, bilharzial papillomata (about five-sevenths natural size). Fig. 3 shows dilatation and ulceration of mucous membrane (about two-thirds natural size).

urine flowing from it, or the opening may be so drawn up by contraction of the ureter that all that is seen in its place is a small funnel-shaped depression. The following cases illustrate this stage of the disease.

CASE 6.—Male, complained of retention of urine for four days. Two years earlier he had two attacks of retention of urine, at 15 days' interval, lasting 24 hours, accompanied by pain and swelling in the right loin, relieved by the passage of a stone and large quantities of urine. Examination: Indefinite swelling in right loin with dullness in front. On catheterisation no urine was drawn from the bladder. Right kidney was drained, and 200 c.cm. of urine drawn. Patient's condition steadily got worse, and he died on the twenty-fifth day after the operation. Post-mortem: Perinephric suppuration round the right kidney, which was in a condition of pyonephrosis. Two stones in right ureter, one about middle, the other at ureteric opening; left kidney in a condition of hydronephrosis. Lumen of left ureter almost obliterated at ureteric opening.

CASE 7.—Male, complained of retention of urine for four days. Examination: Both kidneys in a condition of hydronephrosis. Bladder empty. Both kidneys drained from loin. Patient died ten days later. Post-mortem: Both kidneys in a condition of marked hydronephrosis, with very little kidney substance left. Both ureters were dilated, except at a point just above ureteric opening, where lumen was almost completely obliterated.

CASE 8.—Male, complained of retention of urine and pain in right side for four days. Bladder empty. Diagnosis of calculus in right ureter made. Right kidney exposed from loin and found swollen. It was incised, and its pelvis was found slightly dilated, but did not contain any stone. A catheter could be passed down the ureter, but only as far as a point near the bladder. A drainage-tube was inserted in the pelvis of the kidney. Patient died three days later with signs of uræmia. Post-mortem: Right kidney in a state of slight hydronephrosis. Right ureter dilated, except for lower 3 cm., where it was represented by an impervious fibrous cord. Left kidney in a condition of advanced hydronephrosis, small in size, but with no kidney substance left. Left ureter in a similar condition as the right. Bladder showed signs of old-standing bilharziasis.

CASE 9.—Male, complained of retention of urine for seven days. Examination: Tender swelling in the abdomen with rigidity of the abdominal wall. Pulse was rapid and respiration thoracic. A diagnosis of acute peritonitis was made. Laparotomy was performed and the abdominal cavity was found to contain urine. Both kidneys were large and in a state of advanced hydronephrosis. A small rupture was discovered in the left kidney, from which urine flowed into the general peritoneal cavity. Left kidney was removed and right drained from the loin. Patient died on the second day of the operation. Post-mortem: Lumen of right ureter obliterated in its lower 3 cm. and dilated above this. Left kidney in a state of hydronephrosis. Left ureter in a similar condition as the right. Bladder showed signs of old-standing bilharziasis.

CASE 10.—Female, aged 21, complained of severe pain in the right loin and incontinence of urine. Gave a history of several attacks of renal colic in the right side. Attacks were followed by the passage of blood-stained urine mixed with pus. On examination right kidney was found tender, enlarged, and cystic. Left kidney could not be felt. Urine: Alkaline, sp. gr. 1015, contained blood, pus, albumin, and bilharzia ova. X ray examination negative. Cystoscopy was not practicable. Operation: Nephrectomy; kidney showed extreme hydronephrosis with a mild infection. Patient passed 400–800 c.cm. urine mixed with blood daily after the operation. She gradually got worse, and died on tenth day after operation with symptoms of uræmia. Post-mortem: Left kidney showed moderate degree of pyonephrosis; lumen of right ureter in lowest 2 cm. almost completely obliterated, upper part much dilated; left ureter in a similar condition; bladder showed no signs of bilharziasis. An empyema on left side of chest.

CASE 11.—Male, aged 40, transferred from the medical section with a diagnosis of calculus anuria. History of anuria for four days with severe pain in the right lumbar region. Operation: Right lumbar nephrostomy. Kidney was found hydronephrotic. No calculi found. Catheter passed down the ureter stopped near the bladder. Patient died of uræmia three days later. Post-mortem: Right kidney hydronephrotic, left small, being represented by a fibrous sac containing a small quantity of fluid. Right ureter, lowest 3 cm. impervious, rest dilated. Left ureter in a similar condition. Bladder showed signs of old bilharziasis.

Diagnosis.—The diagnosis of these cases in any stage depends upon: (1) Recognition of bilharzia ova in the urine; (2) absence in radiographs of the shadow of a stone in the kidney, ureter, and bladder; (3) cystoscopy. Of these, cystoscopy is by far the most important. For although the actual lesion is inside the ureter, one would be quite justified in concluding that the lesions seen at the ureteric opening are but a continuation of the same process higher up.

Differential Diagnosis.—This, in all stages, is mainly from calculus. It must, however, here be emphasised that the two conditions may coexist, and that an attack of renal colic in a patient with ureteral bilharziasis may be due to the passage of a renal calculus. Hence the importance of careful radiography.

Treatment.

Only in the first stage of the disease may tartar emetic be expected to effect a cure. Early diagnosis is therefore the only way of saving the patient's life, as the later stages are always fatal. The surgeon must, however, always keep in mind that while one kidney may be disorganised, the other may be still in a condition amenable to treatment by tartar emetic. During the attacks of renal colic treatment along the usual lines is all that is needed.

In the second stage nephrectomy for hydronephrosis and pyonephrosis is justified if the disease is unilateral, which is, however, very uncommon. Abdominal nephrectomy will be found much easier than the lumbar operation, which is sometimes rendered impracticable owing to the shape and size of the diseased kidney. It is of vital importance that the function of each kidney should be estimated separately before any such operation is undertaken since the hydronephrotic kidney may be the only one that is functioning, the other kidney having been destroyed at an earlier date. If the disease is bilateral tapping the kidney through the loin by a Potain's aspirator will often relieve the patient for two or three months, when the same process may be repeated if necessary.

In the third stage no treatment is of any avail. Nephrostomy does not seem to modify the progress of the condition in any way.

Summary.

1. Bilharziasis of the ureter exists, and may be the only, or the most prominent, manifestation of the disease. The disease is usually bilateral, though more advanced on one side than on the other. The disease is very chronic, and the stages merge one into the other.

2. The disease ends in the formation of fibrous tissue, which replaces the normal coats of the ureter. This leads to contraction and narrowing or even complete obliteration of the lumen of the lower part of the ureter. Secondary to this the upper part of the ureter and pelvis of the kidney become dilated.

3. Ascending infection is rare, and is mostly a complication of bilharziasis of the bladder.

4. The disease, if neglected, is very fatal, ending in death, usually from uræmia and rarely from septicæmia.

My thanks are due to Dr. Anis Onsy Bey, clinical pathologist to the hospital, who prepared all the specimens for me, and to Dr. M. Erfan and Mr. A. W. Mooro, registrars at the hospital, for their help in the preparation of this article.

A CASE OF
ARTERIO-VENOUS ANEURYSM OF THE NECK.

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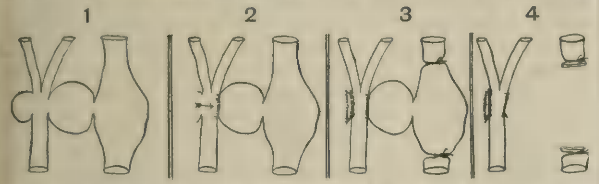
THE case here described illustrates several points of surgical and medical interest.

The patient, a labourer aged 39, was admitted under my care, nine months after a gunshot wound of the neck, with all the signs and symptoms of an arterio-venous aneurysm of the left common carotid artery near its bifurcation, as well as the type of sensory aphasia known as word-forgetfulness. Operation was advised on account of the patient's distressing insomnia and the fact that the aneurysm was gradually getting bigger.

Operation.—Anæsthetic, chloroform and ether; duration, two and a half hours. The left side of the neck was opened up by a Z-shaped incision over the sterno-mastoid muscle. The latter was cut near its origin and turned upwards. Crile clamps were applied to the common carotid and the internal jugular at the root of the neck, and to the internal and external carotids and the upper part of the internal jugular. One clamp sufficed for both the internal and external carotid arteries. Dissection then showed the condition to be a varicose aneurysm, the size of a walnut, of the common carotid artery and the internal jugular vein, together with a small saccular aneurysm, the size of a hazel-nut, on the opposite side of the artery, and extreme dilatation of the corresponding part of the vein (Fig. 1). The vagus nerve was adherent to the arterial aneurysm and on it was a traumatic neuroma about 8 × 4 mm. The cervical sympathetic was not implicated. The arterial aneurysm was first excised. Through the opening thus produced, the communication between the artery and the other sac could be clearly seen and was closed by a continuous "Matas" suture of No. 000 silk sterilised in liquid paraffin, penetrating the intima and muscularis only (Fig. 2). Then the wound resulting from excision of the arterial aneurysm was closed by Dorrance's method (Fig. 3). Lastly, the dilated portion of the jugular vein, together with the varicose aneurysm were totally excised between two ligatures (Fig. 4). The wound was kept wet with liquid paraffin all through the operation. On removing the Crile clamps, pulsation returned in the now slightly constricted artery, and there was slight oozing through the Dorrance suture, but none through the Matas suture. The oozing, however, stopped almost immediately on the application of a piece of muscular tissue. The sterno-mastoid was then sutured in position and the area of operation drained by a small tube inserted through a separate skin incision.



Diagrams showing the steps of the operation.

FIG. 5.

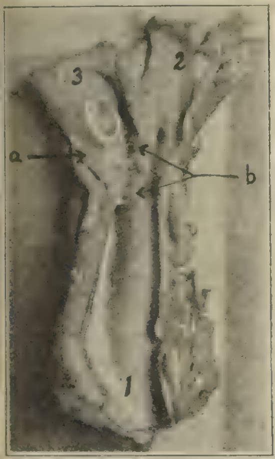


FIG. 6.

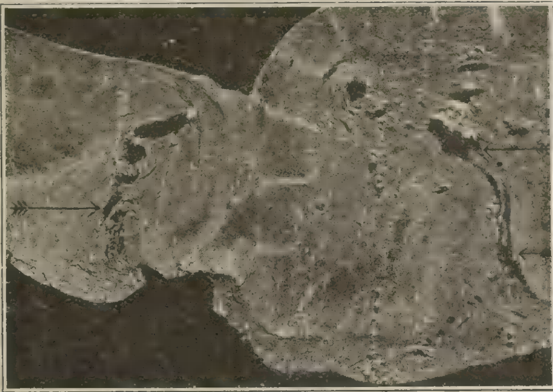


FIG. 7.

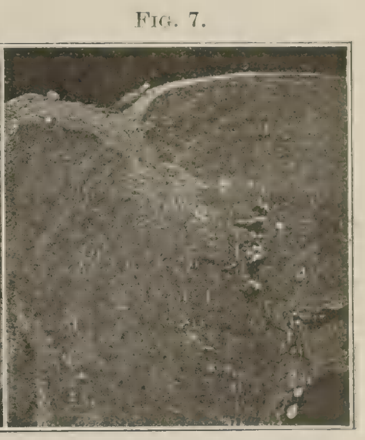


FIG. 5.—Common, external, and internal carotid arteries, slit open (two-thirds natural size). 1, Common carotid; 2, external carotid; 3, internal carotid; (*a*) scar after intra-arterial non-penetrating suture; (*b*) scar after Dorrance's penetrating mattress suture.

FIG. 6 is a microphotograph of a transverse section at the site of the Dorrance suture, showing eversion of all the layers of the arterial wall as well as the tract of the silk suture. The endothelium appears as a faint light border to the darker muscularis. The arrows indicate the tract of the silk thread. FIG. 7 is a microphotograph of a section at the site of the intra-arterial suture.

Progress of Case.—There was some superficial sepsis in the lower part of the wound which soon cleared up, the wound having completely healed on the eleventh day. The patient, however, developed double broncho-pneumonia on the day following the operation and died of it on the thirteenth day.

Autopsy.—The lungs were both the seat of advanced broncho-pneumonia going on to abscess formation and commencing gangrene. The brain showed an area of old softening the size of a half-crown in the posterior part of the left temporal lobe—evidently the result of an embolus produced by the gunshot wound of the artery. The lumen of the artery was patent and smooth. There was no trace of ante-mortem clot. The aneurysmal opening, which was closed by a continuous suture from the inside, was hardly apparent to the naked eye. The wound, which was closed by mattress suture from the outside, showed the line of suture apparently covered by endothelium (Fig. 5).

Paraffin sections of the artery at the site of the operation (Figs. 6 and 7) showed that: 1. Both openings had healed completely, and the lines of suture were completely covered over with endothelium several layers thick. 2. Although cosmetically the intra-arterial suture was superior to the Dorrance suture, healing had taken place by means of much more fibrous tissue in the former than in the latter.

This case, therefore, supplied the following interesting information: 1. Gunshot wound of the common carotid artery as a cause of cerebral embolism, resulting in word-forgetfulness. 2. The microscopic appearance of a healed arterial wound 13 days after its infliction and suture. The case further illustrates the relation between "word-forgetfulness" and a lesion of the posterior part of the left temporal lobe of the brain; and the fact that a lesion of one vagus nerve is compatible with a normally functioning heart.

I am indebted to Drs. A. Girgis and M. Ragheb for the paraffin sections and the photographs.

CHRONIC PROSTATITIS AND LUPUS ERYTHEMATOSUS.

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LUPUS erythematosus is a chronic inflammatory disease of the cutis, possessing special characteristics, and due to a toxin circulating in the blood. It is, in its essence, a toxic erythema of a non-specific character. The French view, that it is caused by the toxic products of the bacillus of tuberculosis, is true only in a certain small proportion of cases. In most instances it is not possible, by any clinical or other means, to demonstrate the presence of a tuberculous focus in any part of the body. Indeed, considering the high incidence of tuberculosis in the community, one would expect—were the French view correct—to find lupus erythematosus much more frequently than one does. The source of the toxin is undoubtedly in some cases a tuberculous deposit in the lungs;

but it is much more often to be found in a non-tuberculous condition elsewhere.

A pyorrhœa alveolaris, a chronic tonsillitis or rhinitis, a chronic intestinal infection, may each be the underlying cause of the disease. Such conditions are comparatively common, and, if one includes tuberculosis, it is not unwarrantable to assume that the greater proportion of the population can be labelled with one of them. It would therefore appear—when one considers the comparative rarity of lupus erythematosus—that there must be some other causes which determine the outbreak of the disease in certain people.

In many instances it has been shown that a nervous factor is present. Perrin and others record cases in which the disease has appeared after an emotional storm. The typical limitation of the patches of erythema, and the areas generally affected, make an angio-neurotic element appear to be a reasonable supposition. The face—a region in which vasomotor reactions are common under nervous and climatic stimuli—is a favourite site of lupus erythematosus. Its frequent situation in the chilblain areas, and the many close relationships between it and Raynaud's disease, point most decidedly to a vasomotor factor. Trauma can be shown, in certain instances, to have decided the point of outbreak. The position would, then, appear to be that a toxin circulating in the blood may cause no cutaneous symptoms until some other influence comes into play, which, by causing a vasomotor upset in some particular area, gives rise to the condition of lupus erythematosus in that area.

It is clear, then, that the main principle of treatment is to eradicate the toxin and its place of manufacture. Any light that can be thrown upon such foci, and upon the causal organisms, should be of some value. So far as my inquiries go, I have not been able to trace any reference to a relationship existing between lupus erythematosus and chronic gonorrhœa. For that reason the publication of the following case may be of interest :—

An officer in the Mercantile Marine, aged 43, consulted me on Jan. 10th, 1923, complaining of increasing difficulty of micturition and occasional "morning drop." He was infected with gonorrhœa in Bombay in 1910. He treated himself with permanganate injected with a hand syringe, and also took capsules of sandalwood oil. He had "inflammation of the bladder" a few weeks after he commenced this treatment. He consulted a chemist for this, who gave him medicine. He considered himself cured after about two months, although he noticed a glueing together of the lips of the meatus in the mornings. When he came to see me his ship was laid up for refitting, so that he was able to have continuous treatment. He is by no means a total abstainer from alcohol, has had malaria, and was torpedoed in 1916. Several patches of lupus erythematosus were present on the nose, cheeks, and chin, but especially on the nose. This, he stated, had been present for about seven years.

Condition on Examination.—Two urethral strictures, 2 in. and 3½ in. from the meatus. Heavy threads in the last urine. Prostate slightly enlarged, harder than normal, and somewhat nodular. Pus cells and numerous organisms present, but no gonococci found in the prostatic secretion.

Diagnosis.—Stricture. Chronic gonococcal prostatitis.

Treatment.—It was justifiable to assume from the condition and from the history that the prostatitis was gonococcal in origin. Weekly injections of a residual stock vaccine—gonococci plus secondary organisms—prepared by Dr. C. E. Jenkins, pathologist, Salford Royal Hospital, were given for ten weeks. Prostatic massage was performed twice weekly. Weekly dilatation of the strictures was instituted by means of flexible bougies and by the Kollmann's irrigating dilator. Posterior irrigation—Janet method—daily, and atropine suppositories twice weekly. Once daily 2 c.cm. of iodargol were instilled into the bladder and posterior urethra, and a collodion seal applied to the urinary meatus. This seal was kept on for three hours. As it occurred to me that there was a possibility that the lupus erythematosus was a consequence of his prostatic condition, I refrained from treating his facial disease locally.

Course of Case.—During the first four weeks the facial condition became worse, being obviously stimulated into activity by the massage and the instrumentation. From then onwards, the hyperæmia rapidly decreased. By the tenth week it had practically disappeared except one small patch, rather less than a threepenny-piece in size, on the bridge of the nose. This was treated with carbon dioxide snow on the occasion of his last visit. At that time the prostate was normal, the strictures had been dilated to No. 27 French, and urethroscopic examination showed as the only abnormality a slight increase of hyperæmia and prominence of the verumontanum. He was under my treatment till March 23rd, when he returned to sea.

I regard this case as one in which the focus of infection causative of the lupus erythematosus was in the prostate. The patient could not be certain that the skin condition was not present before he was torpedoed, he thought that it was, but he was sure that it became worse afterwards. The nervous excitement of that occurrence, the exposure to sun and wind in a rowing boat for two days under severe mental stress, were, in all probability, the deciding factors for the facial outbreak or its aggravation. He has been engaged principally in the Far East trade, and in consequence has been much exposed to the sun.

I have felt that this case indicates that in every male patient who is suffering from lupus erythematosus, the venereal history should be inquired into; and, whether it be positive or negative, the genito-urinary tract should be thoroughly examined to eliminate the possibility of the focus of infection being situated therein.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

A MEETING of this Society was held on Nov. 26th with Dr. HERBERT SPENCER in the chair.

Mr. W. SAMPSON HANDLEY opened a discussion on

THE TREATMENT OF ACUTE SUPPURATIVE GENERAL PERITONITIS.

The subject of debate should, he thought, be restricted to cases of acute unlocalised or unlimited spreading or plastic suppurating peritonitis, threatening to end in death within a few days at most, and due to pyogenic organisms. He proposed to present only the results of his own experience, mainly of peritonitis following appendicitis. The clinical concept of "general peritonitis" was well established, and must not be taken to imply the belief that the peritonitis was universal. This was rarely the case, even post-mortem. The class of case they were dealing with developed, within a short period of onset, the clinical picture of general peritonitis as described in text-books, with a universally distended, rigid, tender abdomen, and repeated vomiting, which became offensive and assumed the type of frequent effortless regurgitation. The passage of flatus and fæces ceased, the pulse became rapid, at first wiry, then running and uncountable. The face became anxious and drawn, and a deadly coldness of hands, feet, and nose finally indicated that death was a matter of hours—a fact of which, under the stimulant influence of the streptococcal poison, the patient was often acutely conscious.

Consideration of Accepted Treatment.

In the accepted treatment of peritonitis developed by Murphy, Fowler, Barnard, and others, immense strides had been made in the last 20 years with regard to prevention, though much remained to be done. It was now universally recognised that in dealing with an acutely inflamed appendix medical treatment was useless, the only rational course being to remove the offending organ within two hours of diagnosis. As even the latest text-books made no distinction between some of the early and late symptoms of appendicitis, avoidable delay in diagnosis still often occurred. The sudden onset, in a patient previously healthy, of acute abdominal pain, soon settling in the right iliac fossa, if accompanied by an initial vomit and by local deep tenderness at the appendix point only, justified the diagnosis of acute appendicitis, in the absence of all other signs and symptoms. It should be emphasised that muscular rigidity and pyrexia were often absent in the early stages. Again, if the case was not a very early one, and especially if there was rigidity in the midline of the abdomen before the appendix was approached, a small median incision should first be made and a gauze swab cautiously introduced to the bottom of the recto-vesical pouch. If pus or dirty fluid was present, a drainage-tube must be left in the pelvis. The appendix was then removed through the same or a separate incision; if no pelvic infection was found, the median incision was closed, and the appendix removed by the usual right iliac incision. The adoption of this rule would often disclose unsuspected early infection of the pelvis, the first stage of a pelvic abscess, or a general peritonitis.

Removal of Septic Focus, Drainage, &c.

An operation for peritonitis was incomplete unless opportunity was taken to remove the septic focus or close the perforation, though in very rare cases the procedure might be impossible or inadvisable. In established peritonitis or intraperitoneal abscess, it was courting unnecessary risk to close the abdomen without providing drainage. Only in massive fouling of the peritoneum by the contents of the stomach or intestine should irrigation be resorted to, and then only with saline at 103° F., mixed to a uniform temperature. Very hot fluid might cause fatal shock. Mr. H. W. Carson in his historical survey of the treatment of peritonitis had rightly emphasised Murphy's method of continuous saline infusion in the milder cases of unlocalised peritoneal infection, a method which had doubtless saved many lives. Lawson Tait's treatment of peritonitis by saline purgatives represented at its time a great advance; it probably succeeded only in milder types of infection, and where exposure, chill, and rough handling of the intestine had inhibited its action for a time. Purgatives, however, were frequently ineffectual either because they were vomited, or because the bowel was too paretic to react to them; they might cause spread of the peritonitis, but were indispensable in the milder forms, although ineffectual in the graver ones. Similarly, eserine or pituitrin might score a triumph in mild cases.

Antitoxins and Vaccines.—"Ileus Duplex."

Experience gave him some belief in the virtue of antistreptococcic serum, if only for its food value where all food was rejected. He thought all vaccines irrational in the treatment of such an acute intense toxæmia as accompanies peritonitis. These standard practices in the treatment of peritonitis, though successful in milder cases, were inadequate in graver peritoneal infections. In these graver cases many surgeons counselled non-interference and despair. He wished to combat this attitude, and to show that many cases of general peritonitis, hastening to a fatal issue in spite of energetic treatment on accepted lines, could be saved by recognition of the fact that the patient was dying of intestinal obstruction. Acute appendicitis passed into general peritonitis by rupture of the appendix from 24 to 48 hours after onset, and by a trickle of pus or foul fluid over the brim of the pelvis to the bottom of the recto-vesical pouch; with a sufficiently virulent infection, the conditions for a general peritonitis were then established. Peritoneal inflammation began at the bottom of the recto-vesical pouch and spread upwards through the abdomen; this fact was the key to successful treatment.

Three stages were recognised: (1) Pelvic peritonitis, (2) hypogastric peritonitis, and (3) terminal or "clinical picture" stage. Even in the last stage the peritonitis was rarely universal. The continued vomiting showed that the stomach and upper intestine retained some contractile power, and were therefore not intensely inflamed. Post-mortem observations confirmed this conclusion. Even in the earliest or pelvic stage of a general peritonitis, intestinal obstruction might supervene, accelerating the upward spread of the disease. With these cases he had dealt in his Hunterian lecture in 1915. There were two points of obstruction in the intestine, the inflamed pelvic ileum and the inflamed pelvic colon; he had named the condition "ileus duplex." It was not sufficient to short-circuit the distended supra-pelvic ileum into the cæcum, for the obstruction in the pelvic colon remained and the patient died. Four such cases out of a total of five ended fatally. If, in addition, a cæcostomy opening was made, recovery was the rule; so far, since adopting this treatment, he had not lost a case. In 1915 he had not recognised, what he now clearly saw, that ileus duplex represented the early stages of a general peritonitis. Prompt treatment demanded early recognition of the clinical signs of ileus duplex. Ignoring local signs in the right iliac fossa due to the previous peritonitis, the usual course of events was as follows: After operation for acute appendicitis, for a day or two all went well, but temperature and pulse failed to return to normal, and on the second or third day vomiting returned, persisted, and might finally become offensive. The passage of flatus and fæces ceased, and there was some distension of the hypogastric region; but there was no muscular rigidity, for at this stage peritonitis was confined to the pelvis. If drainage, saline infusion, purgatives, and enemas failed, prompt operation was necessary. Priority in the recognition and successful treatment of cases of similar character following operations on septic pelvic conditions, such as carcinoma of the cervix, belonged to Mr. Victor Bonney, who advocated treatment by jejunostomy, with subsequent resection of the jejunum a fortnight later when the obstruction had passed off; in his hands this plan had been very successful. His own method of treatment by ileo-cæcostomy and cæcostomy (continued Mr. Handley) had the advantage that it did not subject the patient to the discomfort and loss of nutriment involved in enterostomy, and also usually avoided the necessity of a second operation, for the cæcostomy generally closed spontaneously. But if the patient's condition was very grave, jejunostomy, as a quicker operation, might be preferable.

Hypogastric Peritonitis.

If the treatment described was carried out, the upward spread of peritonitis was almost invariably arrested, but if the obstruction remained unrelieved, the condition began to approximate to the typical general peritonitis described in the text-books. The peritonitis spread upwards to the hypogastric region, the hypogastric muscles became rigid, and the lower part of the abdomen became distended and immobile. The distension had a well-defined upper limit just above the umbilicus; higher still the muscles were not rigid, and still moved slightly with respiration. The vomiting was still gastric, or might have become offensive. The pulse was 120 or 130, and the condition evidently grave, but the extremities were still warm.

Clinical Picture Stage.

If nothing was done, the patient passed, probably within 24 hours, into the "clinical picture" stage, with cold extremities and running pulse. Ileo-cæcostomy and cæcostomy would now be useless, the supra-pelvic ileum being paralysed by the ascending tide of peritonitis, but the condition was still not hopeless, for the abdomen *above the umbilicus* was still free from inflammation. He had tried to improvise a complete emergency alimentary canal above the level of the flood by reopening the abdomen laterally to the umbilicus, and anastomosing the uninflamed transverse colon to a distended but uninflamed coil of jejunum. A temporary exit from the large intestine was then made by tying a tube into the cæcum. The success of this plan had exceeded his hopes, recovery following in three out of four cases.

Discussion.

Sir CUTHBERT WALLACE recalled correspondence on the subject under discussion which had passed between Mr. Handley and himself during the war. The speaker had advocated the methods of treatment described, but without good result; nevertheless, he still might be persuaded of its usefulness. Mr. Handley's treatment was really the treatment of intestinal obstruction; he was going to talk about peritonitis. There were two routes by which patients were killed—the diaphragmatic route and the route of the vessels. The diaphragmatic route was the more dramatic, and had impressed itself upon clinicians. He had seen the surgical treatment of peritonitis from its outset; he himself had once used evisceration and lavage, which had then seemed better than any other method. At present he simply removed or closed the infecting focus and shut up the abdomen; since 1906 he had never drained the latter, and had had no reason to go back on this practice. He laid emphasis on the fact that the peritoneum would kill bacteria, whilst the abdominal wall would fall a victim to them. He considered the surgeon's work to be done when the infective focus was removed.

Mr. **GARNETT WRIGHT** found that the discussion, like all discussions on peritonitis, was limiting itself to appendicitis. General peritonitis, extending from the floor of the pelvis to the diaphragm, was uniformly fatal and seldom met with. Despite modern treatment based on the work of Murphy, the mortality remained high; there was not much further advance till Mr. Handley's paper in 1915, which marked progress not by its description of the pathology of ileus duplex, but by the statement that patients were dying not from toxæmia but from intestinal obstruction. Personally, he believed such obstruction to be due to matting of the bowel. Several times he had separated coils of intestine and had found even when acute sepsis was present that patients recovered; he found the bowel flattened, but evidently not paralysed. They were all familiar with the type of patient who presented symptoms of obstruction outweighing the inflammatory symptoms. The rectus or mid-line incision was preferable to McBurney's incision, and the latter should be abandoned. Mr. Handley had described the operative measures he preferred; he (Mr. Garnett Wright) held that if temporary relief were given the bowel would recover its power. Enterostomy was most valuable when performed early, as soon as the symptoms of obstruction appeared. The aim should be to keep the bowel empty; aperients precipitated the onset of obstruction.

Mr. H. W. **CARSON** felt certain that peritonitis was preventable, and due only to delay in acting upon the diagnosis which ought to be made from the clinical picture. He believed with Mr. Handley that the inflammation spread from one point through the peritoneal cavity; the mortality was directly in proportion to the delay in operating. The treatment of peritonitis occurred before the patient came to the operating table; it occurred at home. The sitting-up position was useful before operation. Nothing should be given by mouth to the patient; if the bowel was loaded an enema, or if empty a saline, should be given, whilst the patient was waiting for the ambulance. He always ordered an enormous fomentation to be applied, going right round the patient's back and reaching down to the pubes. If the lesion was not found the patient would die. He believed in drainage. He made it a rule to operate if there was intestinal pain, whether obstruction was present or not.

Mr. R. P. **ROWLANDS** believed that, in the main, cases of peritonitis did die of intestinal obstruction. About 2500 people died of acute appendicitis every year in England and Wales, mostly through peritonitis. The latter condition was avoidable, but usually the patient did not consult a doctor soon enough, and the doctor did not diagnose the condition in time. The first essential was to remove the focus of infection or to stop the leak. Then the mass of extravasated material must be moved from the abdomen. Speed was almost equally valuable with good work. He did not wash out the peritoneal cavity, but packed it with dry gauze rolls, which could be pulled out entire, leaving the peritoneum dry. He believed in drainage in bad late cases; gauze drainage was to be avoided. Anastomosis between, say, the jejunum and colon did not meet the requirements of the condition, as the lower bowel was badly infected.

Dr. V. Z. **COPE** thought that sufficient distinction had not been made between the different types of peritonitis. He had recently had a case of general suppurative peritonitis starting in the upper abdomen, with no great distension, yet with the same symptoms as those already described. In peritonitis the poison was partly in and partly out of the bowel; the latter was more or less paresed, but not always paralysed. Unless the various ptomaine poisons within the bowel were got rid of, partial obstruction occurred. Mild aperients might be given at first, and stronger aperients after 36 hours; then enemata should be tried, and then cæcostomy or jejunostomy. The contents of the peritoneum outside the bowel should also be dealt with. Vaccines and serums were useful. In severely toxic cases some form of immuno-transfusion might be tried with advantage.

Dr. H. H. **RAYNER** stated that many patients died of acute toxæmia from absorption through the intestinal membranes long before obstruction had time to occur. Death from obstruction took place when nature had limited the field of infection at the onset.

Mr. T. H. C. **BENIANS** spoke of peritoneal immunity and the pathogenicity of *B. coli;* acute toxæmic conditions, he believed, were due to coliform organisms rather than to streptococci.

Mr. **WARREN LOW** thought that the term "general peritonitis" covered an enormous number of diseases; of these, the peritonitis arising from acute appendicitis was the commonest and the most amenable to treatment. He agreed as to the importance of removal of the septic focus, but in a collapsed patient he had left a suppurating appendix in the body and the patient had lived. In cases of distension he had emptied several coils of bowel through an incision and found the procedure useful.

Dr. **SPENCER** believed that the less drainage was employed the better, but that, nevertheless, patients would be killed if the method were never used.

Mr. **SAMPSON HANDLEY** briefly replied.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Nov. 23rd, Mr. R. H. **ANGLIN WHITELOCKE**, the President, being in the chair.

Dr. J. D. **ROLLESTON** showed a specimen of

Hair-Ball of the Stomach.

The specimen was from a girl aged 15—an epileptic idiot who suffered from vomiting and diarrhœa a week before her death. A mass was found in the epigastrium which was thought to be the enlarged right lobe of the liver. At post-mortem the stomach was found to be filled with a collection of hair which formed a complete cast of that organ. On inquiry from the mother it was learned that the patient had been in the habit of eating her hair since she was a baby. Dr. Rolleston reviewed the bibliography of this subject. He considered the X ray appearance so distinctive—the hair-ball appearing a lighter area in the midst of the dark shadow of the bismuth—that a correct diagnosis should now be the rule instead of the exception.

Mr. H. A. T. **FAIRBANK** showed a photograph of a hair-ball removed from the ileum of a girl, aged 8 years, whose symptoms resembled those of partial obstruction.

Dr. W. E. **ROBINSON** showed a case of

Lymphangioma of the Foot

in a child aged 7 months. The foot was noticed to be growing larger, especially in the region of the metatarsal bones and terminal phalanges. The X ray, however, showed the bones to be perfectly normal. He asked for suggestions as to treatment.—Mr. C. MAX

PAGE suggested that a Syme's amputation appeared to be the most rational surgical treatment for this case.—Mr. **FAIRBANK** suggested that the diagnosis should be that of hypertrophy of the foot, and agreed with Mr. Max Page as to treatment.

Dr. A. **BENJAMIN** showed a case of

Precocious Puberty

for Dr. R. Hutchison. The child, now aged 3½ years, commenced menstruation at the age of 17 months, and had continued menstruating at more or less regular intervals of one month up to the present date. The breasts were well formed, and hair was present on the pubic region. Her weight and height were that of a child of 8 years. Mentally she was normal for a child of her age, but had fits of bad temper. The carpal bones were ossified. He placed this case, by a process of exclusion, amongst those due to ovarian hypersecretion, although under an anæsthetic no definite evidence of this could be obtained.—Dr. **PARKES WEBER** agreed with this diagnosis.

Dr. C. C. **WORSTER-DROUGHT** showed a case of

Progressive Neural Muscular Atrophy

(peroneal or Charcot—Marie-Tooth type), in which the upper limbs were also affected. The patient, aged 13, was one of a family of three, the other two not being affected. After the age of 2½ it was noticed that she turned her toes in and tended to fall down when she walked. During the past four years her feet had become more deformed and the hands and arms had wasted considerably. Her present condition was thin and nervous, and she constantly wriggled her feet and legs. There was a tendency to bilateral main-en-griffe with marked wasting of the small muscles of the hand. The lower extremities showed pronounced talipes equino-varus of both feet with wasting of the peronei. The electrical reactions were given in detail. Dr. Worster-Drought stated that it was difficult to draw a hard-and-fast line between certain neural atrophies, nuclear atrophies, and muscular dystrophies.—Dr. E. W. **NEILL HOBHOUSE** gave the details of a similar but less marked case. The remarkable feature of his case was that one femur was smaller than the other. He asked if such an abnormality had been previously noted.

Dr. **NORAH SCHUSTER** and Dr. **DONALD PATERSON** showed a specimen from a case of

Paroxysmal Tachycardia,

in an infant aged 9 weeks. The specimen was the heart from a female child, who had been admitted to the Infants Hospital, Vincent-square, for blueness and shortness of breath since birth. The infant weighed 8 lb. When first seen it was wasted, feeble, and cyanosed, with a pulse of 200 per minute. The heart seemed enlarged, so also the liver. During the two days in hospital before death there were four definite paroxysmal attacks, lasting about ten minutes each, during which the infant had marked dyspnœa and cyanosis, and was in obvious distress. The pulse at these periods became uncountable, afterwards falling as low as 140. Digitalis had no effect. At post-mortem a patent inter-ventricular septum, patent foramen ovale, and patent ductus arteriosus were found. The pulmonary artery arose from the left ventricle and the aorta from the right ventricle. Microscopically the heart muscle showed degeneration with intercellular fibrosis.—Dr. **GEORGE SUTHERLAND** considered this a very rare case, and cited a similar case of paroxysms of tachycardia, which had been mistaken for "petit mal."—Dr. **WEBER** suggested that the cases reported in French literature under the heading of paroxysmal cyanosis were similar to this case.—Dr. **PATERSON** agreed that the reported cases were very few, but considered that attacks of blueness with rapid breathing were not uncommon in children with congenital heart disease. He wondered how many of these might be cases similar to the one reported should they be as closely observed as this one had been. It was only by having the pulse charted hourly, and specially taken during attacks, that the condition could be diagnosed.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on Nov. 15th, with Dr. J. **HILL ABRAM**, the President, in the chair.

Dr. **HENRY COHEN** read a note on the

Value of Hypertonic and Hypotonic Saline Solutions in Cerebral Conditions.

After a brief résumé of the experimental evidence on which this therapeutic method is based, he recorded ten cases, six of cerebral tumour and four of post-operative cerebral hernia, in which marked alleviation of symptoms followed intravenous injection of 20 c.cm. of 30 per cent. sodium chloride solution. He commented on the oral administration of salt in these conditions, and on the use of hypertonic salines in the meningismus of acute infections, prior to cerebral operations, in the diagnosis of extracranial from intracranial causes of headache, and in the prevention of foraminal crowding following lumbar puncture in cases of cerebral tumour. The value of hypotonic salines in post-puncture headache was also recorded.—In replying to the discussion, Dr. Cohen pointed out that a considerable amount of experimental work was yet to be done, and suggested that ophthalmic surgeons should try these hypertonic salines in cases of increasing intra-ocular tension.

Mr. W. A. **THOMPSON** read a note on

Renal Sarcoma of the Kidney in an Infant.

The patient was a female child, aged 15 months, who was anæmic, emaciated, and had a large semi-solid swelling in the left lower abdomen. This swelling had been noticed for six months. It was moderately smooth in outline, there was no notch, there were dullness and bulging in the loin with colon resonance in front. The urine was normal, and had apparently always been so. A renal sarcoma was diagnosed and operation advised. The operation was carried out through an incision to the outer side of the left rectus. The peritoneum on the outer side of the descending colon having been incised and its edges brought up to the skin incision, the operation was completed retroperitoneally. The child left hospital ten days later in excellent health. Mr. Thompson said that this condition appeared mainly during the first seven years of life, both sexes were affected with equal frequency, and the right side as often as the left; occasionally it was bi-lateral. The clinical features in all cases were few and uniform—a progressive, painless swelling in the lower abdomen soon associated with an increasing constipation, and ultimately accompanied by emaciation. The condition was thought to be a sarcoma arising from the intrarenal adenomatous tissue which should have formed the convoluted tubules, but which, because of a poor blood-supply, failed to develop normally, and had taken on a tubulo-acinar formation. This had become sarcomatous, and the growth, obliterating the calyces and renal pelvis, prevented secretion from the affected organ, and thus explained the absence of hæmaturia, which absence was such a common feature in these cases. The operative mortality was high, and of the late cases the majority of those who survived operation rarely lived 12 months. This case made excellent progress for almost four months, when the patient contracted measles and died.

Dr. A. **DINGWALL FORDYCE** and Dr. **NORMAN CAPON** communicated a paper on

"Idiopathic" Hypertrophy of the Bladder.

Two cases of this condition were described and lantern slides of the pathological condition exhibited. The analogy with other apparently idiopathic neuromuscular conditions was dwelt upon, and reference made to the literature on the subject. At the post-mortem examination the only pathological findings were hypertrophy and dilatation of the bladder, dilatation of the ureters and of the pelves of the kidneys, and cystic-like degeneration of the kidneys. There was no detectible cause producing the obstruction. The inference, corroborated by analogy, was that vesical spasm produced the local sequelæ, and that it in turn was secondary sometimes to obvious nervous lesions and sometimes to nervous abnormalities which were not detected.—Mr. R. E. **Kelly** pointed out that the post-mortem picture of dilated bladder, dilated ureters, and dilated renal pelves showed a remarkable similarity to the condition found in adults with an enlarged prostate or a stricture of the urethra. The disease was limited to the male sex, and therefore the explanation that it was due to some neuropathic cause was a difficult explanation to accept. In his opinion there was obstruction. This obstruction was due to the constant and repeated blockings of the urethra by plugs of mucus. One had only to witness the pain, tenesmus, and straining in the living subject, followed not by a complete emptying of the bladder, but the passage of a small plug of mucus, to appreciate the enormous strain on the bladder. The increased tension inside the bladder produced the disease. It was a further example of the value of living pathology over observations made in the post-mortem room. In one case he had to withdraw a catheter two or three times, and remove a plug of mucus from the eye of the catheter before he was able completely to empty the bladder. For this reason it was found impossible to wash out the bladder per urethram, for even after repeated washings under an anæsthetic mucus could still be detected by the cystoscope. In his opinion suprapubic cystotomy was the best treatment.

ULSTER MEDICAL SOCIETY.

At a meeting of this Society, held on Nov. 8th, with Prof. W. St. C. **Symmers**, the President, in the chair, a discussion took place on

Insulin in Diabetes Mellitus.

Dr. **John Milroy** made a few introductory remarks on recent developments in the physiology of the internal secretion of the pancreas, especially in their relation to treatment.

Clinical Results.

Dr. **Sinclair Miller** (Harrogate) spoke on some clinical results with the use of insulin in diabetes mellitus, in which he showed that insulin was a potent remedy in the treatment of this disease. The tedious period of preliminary starvation was no longer necessary and the patient was more rapidly relieved of his distressing symptoms. Within a short period of 24 to 48 hours the blood-sugar of a severe diabetic could be brought down to normal, and in a few days the patient began to feel the benefit of the treatment. The regulation of the diet was as essential as ever, or even more so. Insulin must be given by hypodermic injection as it was rapidly destroyed in the alimentary canal. Recently a method of inunction had been suggested, and it had been shown that insulin given in large doses by the mouth in an alcoholic solution had some effect. The successful treatment of diabetes with the aid of insulin called for the observance of the usual precautions—viz., the eradication of all foci of infection, the accurate control of diet, the maintenance of a normal blood-sugar percentage, the avoidance of over-nutrition, extreme under-nutrition, mental worries, over-exertion, infections, chills, &c., and a life consistent with the diet restrictions. Insulin and dietetic restrictions were unnecessary in renal glycosuria. In cases of glycosuria dependent on cancer of the pancreas or cerebral lesions no benefit could be expected from insulin.

The general practitioner might use insulin with hope of success, provided he had mastered the principles of diet, and had experience of the use of insulin, and that an occasional blood-sugar estimation could be carried out. Starting with small doses, say 5 units twice daily, the dose should be gradually increased until the urine became sugar-free. Severe cases, however, should be placed in a dietetic institution or hospital, and their treatment should last from four to six weeks. An initial fast accelerated the patient's progress. The patient should then be placed upon a diet calculated by allowing about 12 calories to each pound of body-weight, the protein being about half a grain per pound of body-weight, and the carbohydrate at first limited to 20 gr. The fat must be high to make up the proposed total of calories. The ultimate scale of dosage could only be arrived at slowly and by trial. Two injections could be given conveniently, the first half an hour before breakfast, and the other half an hour before the evening meal. If possible, the major portion of the carbohydrate allowed should be divided equally between these two meals. It was more important that food be taken after insulin than that insulin be given before food. After a few days on the basal diet and when the blood-sugar percentage had reached a satisfactory level the diet might be increased and the insulin decreased according to the needs of the patient. Instruction regarding diet and the mode of administering insulin must be given. Over-dosage of insulin produced flushing of the face, followed by pallor, sweating, sometimes faintness, a feeling of extreme hunger, a sense of apprehension, tremors, loss of the finer movements, and ultimately in some cases unconsciousness. There was little risk from hypoglycosuria in institutional treatment, but when the patient was in his own home he should be warned regarding the symptoms and instructed in their treatment, which consisted in administering 1 to 2 oz. of sugar in hot water by the mouth, and in case of unconsciousness an intravenous injection of about 100–200 c.cm. of a 10 or 20 per cent. solution of glucose. One c.cm. of 1 in 1000 adrenalin or 1 c.cm. of pituitrin might be effective in restoring consciousness.

The symptoms of over-dosage by insulin arose at very different levels of the blood-sugar percentage, but generally these symptoms occurred only when the blood-sugar fell below 0·08 per cent. Elderly patients might have a blood-sugar level far above the normal range and yet the urine might be sugar-free. The blood-sugar level was a safer index for treatment than glycosuria. It would seem that the continuous treatment of diabetes by insulin was necessary and the cost was heavy. It might run from £30 per annum in a mild case to £150 per annum in a severe case. In diabetic coma in the early stage insulin was almost a specific. The patient must be given a large dose, 60 units or more intravenously in moderate or severe cases. In milder cases hypodermic injections might be effective. Accompanying the administration of insulin 500 c.cm. of a 10 per cent. solution of glucose should be given. If there was any fear that the alkali reserve was low, 1 to 1½ oz. of sod. bicarbonate should be given. Coma was the result of ketosis, rather than of hyperglycæmia. Insulin assisted in the destruction of the ketone bodies as much as in the reduction of the blood-sugar level. Hence, glucose was given to prevent the risk of hypoglycæmia, and at the same time to supply an easily available source of fuel for the destruction of the ketone bodies. The speaker read notes of a series of illustrative cases.

Dr. J. A. **Smyth** gave the results obtained in the treatment of 50 cases of diabetes mellitus with insulin at the Royal Victoria Hospital, Belfast. He dealt first with the definite diagnosis of the disease, especial reference being made to the use of glucose tolerance curves. In this connexion an account was given of two interesting cases of glycosuria recently seen—one due to injury of the pituitary body caused by fracture of the base of the skull, and the other due to a chronic cholangitis and hepatitis following on a gastrojejunostomy. The treatment of diabetic coma as carried out at the hospital was described in detail, from the borderline cases to those which had been completely comatose for 24 to 36 hours. No case of coma had been lost. Of the cases of ordinary diabetes some had done exceedingly well, most had done well, but one or two had responded only to a limited extent. A detailed account was given of a few cases which presented especially interesting features. In many of them it was possible to demonstrate a greater or less degree of recovery of function of the islet tissue in the course of treatment allowing of a steady increase of carbohydrate in the diet, or a diminution of the amount of insulin.

Reviews and Notices of Books.

CARDIOLOGY.

Principles of Diagnosis and Treatment in Heart Affections. Second edition. By Sir James Mackenzie, M.D., F.R.S., LL.D. Aberd. and Edin., F.R.C.P.I. (Hon.), Director, St. Andrews Institute for Clinical Research; and James Orr, M.B., Ch.B., Physician to the Institute. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 247. 7*s.* 6*d.*

In the second edition of his popular small book on the heart Sir James Mackenzie has been assisted by Dr. James Orr. The book presents afresh the well-known features of the first edition; the subject-matter has been rearranged and one or two new paragraphs have been added. There is one small point in the chapter on heart attacks which calls for comment. The author uses the term "palpitation" to describe the condition more commonly known as "simple tachycardia." As palpitation is generally understood to mean consciousness of the heart's action and may be one of the most troublesome symptoms in paroxysmal tachycardia, the special use of the word is liable to lead to confusion. A critical review of the more recent researches on auricular fibrillation and flutter from the pen of so distinguished a pioneer in the investigation of the cardiac arrhythmias would have been very welcome, but in a book of this size and scope it is probably wise to exclude matter which is still at a controversial stage. We do not doubt that the second edition will achieve as much well-deserved popularity as was enjoyed by the first edition.

Heart Records, Their Interpretation and Preparation. By S. Calvin Smith, M.S., M.D. Philadelphia: F. A. Davis Company. 1923. Pp. 313. $7.00.

In the preface to his book Dr. Calvin Smith states that it is intended to be an "elementary guide" for those who wish to study graphic methods. He deals not only with the physiological basis and the interpretation of records, but also devotes several chapters to the various details of technique. The greater part of the book is concerned with electrocardiography, and the last two chapters refer to polygraphy and graphic methods in general. A highly technical subject such as electrocardiography may be approached from one of two aspects, either from that of the general physician, or from that of the specialist; and in endeavouring to meet the requirements of both parties the author has had difficulty in coming to a satisfactory compromise. The general physician wants to learn how to interpret records, and to know the extent to which electrocardiography is capable of helping him in the diagnosis, prognosis, and treatment of his cases. He does not want to read about the details of technique, nor the various troubles which the laboratory worker is liable to encounter. The specialist, on the other hand, must make himself master of his technique, and cannot do so without possessing an elementary practical knowledge of physics, such as can only be acquired in the laboratory. To the novice Dr. Calvin Smith's book would be somewhat disheartening, for the author's ingenuity has enabled him to compile a truly remarkable list of possible mishaps and mechanical troubles to which the electrocardiographic method is susceptible. He appears hardly to have given his readers credit for the average amount of common sense. This faculty alone should be sufficient to prevent such mistakes as connecting the right-hand wire to the left-hand electrode, or mounting records upside down. Again, the young cardiologist who ventures to arrive at a complete clinical diagnosis by the use of graphic methods alone requires to be instructed in the general principles of medicine rather than cardiology; nor does the operator who gets into trouble through allowing "meddlesome persons" to tamper with his instrument deserve much sympathy. The chapter dealing with photographic technique appears to be somewhat superfluous for the average laboratory worker of the present day, and the book as a whole would be improved by being considerably shortened.

The "Nauheim" Treatment of Diseases of the Heart and Vessels in England. Sixth edition. By Leslie Thorne Thorne, M.D., B.S. Durh., M.R.C.S., L.R.C.P. Lond. London: Baillière, Tindall and Cox. 1923. Pp. 232. 7*s.* 6*d.*

In this book Dr. Thorne Thorne gives a detailed description of the special therapeutic measures employed, and discusses the benefit which may accrue from this line of treatment in various diseases. The author's particular thesis is, that the treatment can be given anywhere where there is a bathroom and a good supply of hot water, with results as successful as those obtained at Nauheim. Thus home treatment in England is available for many patients who would be physically incapable of undertaking the journey to one of the continental spas. So far as this part of his argument is concerned most physicians will be prepared to agree with Dr. Thorne, but when he comes to deal with the mechanism whereby the beneficial effects are obtained, he leads his readers on to much more debatable ground. Therapeutic deductions regarding even empirical treatment are beset with innumerable difficulties, and to attempt to go further, and to explain the mechanism of treatment on rational lines, is to enter a field where hypothesis requires to be supported by very detailed and conclusive evidence. That the "Nauheim" treatment does produce beneficial results in certain selected cases of cardiovascular disease few will doubt, but to assess the respective values of the different factors by which these results are produced is no easy matter. The influence of mind over body has received so much attention in recent years that some may be tempted to think that the pendulum has swung too far; but that there is an important psychological factor in spa treatment is unquestionable. Again, the carefully regulated routine to which the patient is subjected during a course of treatment is undoubtedly of considerable importance. Dr. Thorne appears to over-emphasise the therapeutic value of the baths themselves, and the evidence which he brings forward in order to prove his point is not convincing. For example, it is difficult to believe his statement that "a change of one degree in the temperature of the water, or a shortening or lengthening by one minute of the time of immersion . . . will often materially affect the result."

OPHTHALMIC SURGERY.

A Handbook of the Surgical Operations on the Eyeball and its Appendages as Practised at the I. Eye Clinic, University of Vienna. By Dr. Josef Meller, Clinical Professor of Ophthalmology. Edited by Dr. William M. Sweet, Clinical Professor of Ophthalmology, Jefferson Medical College, Philadelphia. Third edition, translated from the second (German) edition. London: William Heinemann. 1923. With 219 original illustrations. Pp. 365. 25*s.*

Two methods of writing a text-book on any branch of surgery are possible. One is to give some account of all the operations which are or have been habitually practised, the other to select those which the author considers the operations of election, and describe them in sufficient detail to be a real help. The latter is the method of Dr. Meller.

The Vienna methods of operating are very much the same as those practised in London by surgeons who are moderately conservative, and the descriptions in this book and the excellent illustrations will be found useful by the young operator. The first operation described is excision of the lacrymal sac; 12 excellent figures materially assist the understanding of the letterpress. The importance of a careful study of this operation is great, as it is so often done incompletely with unsatisfactory results, a fact which accounts for the introduction of the alternative intranasal operations. These are only briefly referred to. Next we have 90 pages devoted to lid operations. The use of skin flaps is well illustrated. For ptosis the operations described are that of Hess and that of Motais, probably the two which are most generally practised in this country. After a chapter on squint operations, enucleation of the eye under local anæsthesia is described. It appears that in Vienna a general anæsthetic is only used in the minority of cases. Krönlein's resection of the outer orbital wall is an operation for which many ophthalmic surgeons would call in the general surgeon, but the description in this book is no less serviceable on that account. A very detailed description of the ordinary (i.e., extracapsular) operation for the extraction of cataract is given. The only part of it which appears unusual is the position of the operator. It is the custom at Vienna to sit at the right of the patient who is lying on the operating table. The incision is made on the right eye with the left hand, on the left eye with the right hand. There is no mention of "washing out" the soft lens matter, even after the operation of linear extraction in young adults, so that presumably this process is not practised in Vienna. There is no mention either of Smith's intracapsular operation or of Barraquer's. This conservative tendency is also manifest in what the author says of sclero-corneal trephining for glaucoma—viz., that it would appear to be justified only in those cases of glaucoma in which the ordinary iridectomy cannot be performed without extreme difficulty or danger. Because of the possibility of late infection, the operation, he says, is not indicated in young persons or if the patient has only one eye.

While not in agreement with everything contained in this book, we can thoroughly recommend it as a good and clear account of the operative surgery of the eye from a teacher of high reputation. The illustrations are an important, indeed an essential, part of the book.

LIGHT AND COLOUR.

By R. A. Houstoun, M.A., Ph.D., D.Sc., Lecturer on Physical Optics in the University of Glasgow. London: Longmans, Green and Co. 1923. Pp. 179. 7*s.* 6*d.*

Dr. Houstoun has written a very interesting book on light and colour. It is unusual, savouring neither of the text-book nor of that which merely seeks to catch the fancy, though dealing with those aspects of light and colour in which most popular interest is taken at present. How wide a variety these interests include is seen by a glance at the titles of the 11 chapters of the book. Dr. Houstoun wisely does not restrict this treatment to visible radiation; when occasion requires he initiates his readers into the characteristics of other parts of the electro-magnetic spectrum. The chapters on colour photography, colour-blindness, and the light of the future are essentially practical in their treatment. The last chapter is devoted to the psychology of colour, and will be to many a revelation of the effects which different colours may have upon the human subject, not so much perhaps upon body processes as upon the mental ones.

The book is well illustrated; the treatment of the subject is excellent throughout, and a very wide field of interest is covered without elaboration of detail.

BIOCHEMISTRY.

Handbuch der Biochemie des Menschen und der Tiere. Second edition. By many authors, under the general editorship of Prof. Dr. Phil. et Med. Carl Oppenheimer, in Munchen. Jena: Gustav Fischer. 1923. Parts 1 to 7. 4 to 7 pre-war marks each.

Here we have seven discontinuous paper-backed parts of a symposium. Lieferung 1 stops in the middle of a sentence dealing with the pure chemistry of animal fats, whilst Lieferung 2 deals with the gases in the body. This may not be avoidable in the production of a large work of this nature, but it makes comment difficult. The work is to be completed in nine volumes which are to cover the whole field of animal and human biochemistry, the whole subject being treated more from the biological than the purely chemical standpoint. Only a comparatively small section is to be devoted to the pure chemistry of proteins, fats, and carbohydrates. This is a great advantage since the work does not in any way overlap such systems as Abderhalden's "Handlexikon," which is devoted entirely to the pure chemistry of natural products and their physiological properties. Each section is written by an authority and has been brought quite up to date. A series of references is appended to each chapter, and seems remarkably complete. It is impossible to enter upon a detailed review until more sections are completed. The first seven parts are uniformly good, and it is quite safe to say that, if this edition continues in the same manner that it has begun, it will become indispensable to anyone working in the subject.

JOURNALS.

Journal of Industrial Hygiene.—In the September issue H. L. Blumgart reports an investigation made to ascertain whether lead dust deposited in the upper air-passages is absorbed into the body. The experiments were carefully carried out on animals. White lead was sprayed intra-nasally after the œsophagus had been ligatured and a tracheal cannula had been inserted. The animals were kept alive for 24 to 36 hours. In every case lead was found throughout the tissues of the body, showing that it is absorbed from the upper air-passages rapidly and in excess of a minimal toxic dose. The conclusion is drawn that in industry lead dust may be absorbed intra-nasally. —Further observations on tetrachlorethane poisoning by D. C. Parmenter lead to the conclusion that persons exposed to the vapour of this substance show a definite blood picture and gastric symptoms easily recognised. He therefore considers that, provided proper precautions are taken and medical supervision enacted, tetrachlorethane can be used safely in industry.—A report appears upon an extensive investigation into the use of electric precipitation for quantitative determinations of dust in the air. The apparatus and methods employed are fully described. While electric precipitation of dust for this purpose has certain objections, nevertheless the method offers an efficient way of determining the dust particles present.——In the October issue an article by J. S. Sheppard deals with the employment of cardiac patients effected through an employment bureau. The result of regular work on this type of patient was found excellent, and his work tolerance was much greater than was expected before placements in regular industries were made and watched. The experience is held to justify the statement that well selected work will frequently help cardiac patients to improve and go from Class II. B to A, and that work in normal surroundings has a much better effect than work in segregation.—An investigation made in a glass bottle industry by J. P. Baumberger and E. E. Perry is of interest because they found that judgment of size of gobs of glass was dependent on Weber's law—i.e., that a certain percentage increase in the size of stimulus is necessary before the sensation of appreciable increase in size arises. The investigators suggest that in many cases in industry the limits of accuracy to be expected of workers could be determined on the basis of this law.—The most important contribution is one from B. S. Nicholson, who deals with the pathology and clinical aspect of silicosis and pulmonary tuberculosis. This article is the result of careful clinical observation while carrying out work under the Workmen's Compensation (Silicosis) Act, 1918. The author concludes that more persons than is generally thought die from silicosis without becoming tuberculous. He puts forward the suggestion that when tuberculosis is manifested the infection may have occurred when the dust particles were originally inhaled and have remained latent within a centre of silicotic fibrosis until a breakdown of scar tissue releases it, perhaps years later, to subject the tissues to a massive infection

THE LANCET.

LONDON: SATURDAY, DECEMBER 1, 1923.

THE GENERAL MEDICAL COUNCIL.

THE opening of the 118th session of the General Medical Council on Tuesday last, Nov. 27th, was presided over by Sir DONALD MACALISTER, whose devotion to duty must entail considerable personal sacrifice and whose recovery from his recent illness is a matter of great and common congratulation. The address from the chair, which was briefer than usual, took particular note of the position of the medical profession in India, where the conditions for the recognition of Indian medical degrees upon the British Register are attended with difficult and delicate circumstances. The Government has, however, placed Lieut.-Colonel B. A. NEEDHAM, I.M.S., on appointment by the Indian Government and with the approval of the General Medical Council as official inspector of Indian universities and colleges, on special duty in order that he may attend the meetings of the Executive Committee of the Council at this session to discuss all the questions. As Sir DONALD MACALISTER pointed out, and as is too often forgotten, there are two sides to these, as they refer to practice in India or practice in Great Britain. While as far as the first category is concerned the Empire of India may be considered autonomous, as regards qualifications for registration in this country Acts of Parliament compel inquiry into the qualifications for practice. Difficulties will arise, and have arisen, which are not readily capable of solution, and we are glad that the Council, owing to the valuable intervention of Sir NORMAN WALKER, will be able to obtain first-hand advice from Colonel NEEDHAM.

Most of the time of this session will be occupied in hearing cases of discipline under Section 29 of the Medical Act, 1858, and after the President's address the business of the Council was directed immediately to the hearing of these cases.

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THE SUPPLY OF NURSES.

SOME three years ago Mr. E. W. MORRIS, house governor of the London Hospital, pleaded[1] for a thorough investigation of the reasons why women were not entering the nursing profession in sufficient numbers. The shortage of probationers of a type acceptable to matrons of hospitals still remains acute, and though in this country no steps have yet been taken to organise such an inquiry, the problem has been tackled with considerable skill and understanding in America by a committee appointed by the Rockefeller Foundation. The main outcome of the labours of this committee, a section of whose report we summarise on p. 1203 of this issue of THE LANCET, is their conviction that little improvement will result until the conflict is recognised and to some extent resolved, which at present exists between two of the functions of a modern hospital—viz., that of economic hospital administration, which aims at caring for the sick at minimum cost, and that of catering adequately for the educational requirements of nurses. No one who studies carefully the documented evidence on which this conclusion is based can doubt its truth. Among the constructive suggestions to which it gives rise are: (1) That training schools should be under the direction of a board organised for the primary purpose of education, and (2) that adequate funds should be available not only for the educational expenses of the school itself, but also for the replacement of student nurses by graduate nurses and hospital help in the execution of routine duties of a non-educational character. It is idle for hospital administrators and senior members of the nursing profession to regret the days when nursing made a strong appeal to the highly-bred educated woman, who adopted it as a pious vocation rather than as a profession. These days will not return. The sane young woman of to-day differentiates clearly between her desire to serve the community and the need first to equip herself speedily and adequately to do so. Since many professions giving opportunities of service are now open to her, factors in her choice will, doubtless, include conditions of training which are not unnecessarily strenuous or autocratic, as well as prospects of reasonable remuneration, status, and employment when training is complete. While the difficulties of the authorities responsible for staffing hospitals with probationers of a type most likely to develop into reliable staff nurses and sisters receive universal sympathy, the point of view of other interested parties—the medical practitioner, the patient, and the nurse herself—have not always been treated with the same respectful consideration. May it not be that the leaders of the nursing profession have ideals for its development which rise above the effective demand of the average practitioner and patient, and moreover require a degree of intellectual ability which will not be satisfied by the conditions of work open to any but the very few?

This is a view which has influential medical backing. Among the Collected Papers of the Mayo Clinic for 1921[2] is a report of an address by Dr. C. H. MAYO to a hospital conference, in which he sharply criticised the conditions of training of the hospital nurse in this sense. He complained that the nurse who, having achieved a high standard of general education, has laboured diligently in hospital for three years, emerges overtrained as a nurse and undertrained as a physician. He contended that the requirements are too high for the average work demanded of the nurse after registration, holding that they should on the one hand be raised for those who are capable of acting as responsible technical assistants or specialists in various branches of nursing, and on the other hand that the period of compulsory training should be made shorter in conformity with requirements for general nursing. He suggested the reduction of the course of training to two years, with a third year of post-graduate study, which should be optional. This extra year should not necessarily follow directly on the early training, but those who wished to do so might be allowed to return to hospital at any time to qualify for higher service. "Chief nurse in the hospital, chief surgical nurse, nurse in dressing service, anæsthetist, county, city, and school nurse, industrial and child welfare nurse, dentist's aid, physician's aid, and laboratory technician" are among the positions suggested for those who have completed the advanced course.

The dual difficulty has received attention from the Rockefeller committee, who recognise it by the suggestion, which is more likely to find acceptance than that put forward by Dr. Mayo, of the formation of a subsidiary nursing service. To those who refuse to admit the need of any reduction in the standards required of one expected to attend to the sick, it may be pointed out that though we cannot fight disease with an army of privates, neither do we need an army of generals. That the distinction should be in the nature of the work undertaken rather than on economic lines will doubtless make the proposal less unpalatable to the nursing profession, which has not hitherto looked kindly on any suggestions of grading. As we pointed out last week in connexion with the establishment of convalescent hospitals for the double purpose of pre-hospital and post-hospital care, attention to an invalid who is not ill enough to be interesting is apt soon to become irksome. The boredom of the experienced nurse in charge of a chronic case, and her desire to leave such a post for one in which her technique has more scope, is an obvious corollary of the development of nursing education, but the wants of the subacute or chronic case are likely to suffer in the future unless some sort of subsidiary nurses are available. For these patients the economic question also is a serious one, in proportion as their illness is protracted. The letter which we print on p. 1220 gives expression to still another side of the difficulty. The problem here is the provision of nursing service which combines the minimum efficiency demanded by the doctor and the maximum remuneration in the way of accommodation and standards of comfort, as well as fees, that can be afforded by the patient. We trust, therefore, that serious consideration will be given to the section of the report which attempts to meet this need, as well as to that on the training of hospital nurses.

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[1] THE LANCET, 1920, ii., 1293.

[2] Collected Papers of the Mayo Clinic. Vol. XIII.–1921. Edited by Mrs. M. H. Mellish. London and Philadelphia: W. B. Saunders. 1922. Pp. 1318. 60s.

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PUBLIC HEALTH AND THE ROCKEFELLER FOUNDATION.

Out of the Rockefeller Sanitary Organisation for the Eradication of Hookworm Disease—planned and matured in the mind of Mr. John D. Rockefeller in 1909—there has grown the International Health Board of the Rockefeller Foundation, and before us we have the ninth annual report, covering the period from January to December, 1922.[1] With such success was the original plan carried out—involving a geographical survey of the distribution and intensity of the disease in the United States, the cure of its sufferers, and removal of the source of infection by avoidance of soil pollution—that in 1914 the chief purpose of this first Sanitary Commission may be deemed to have been accomplished. The success was such that in 1913 a permanent institution on a wider basis, the Rockefeller Foundation, was endowed by its founder with 100 million dollars. In the course of ten years of coöperative service, hookworm infection the world over has been measurably diminished, progress has been made towards reducing the ravages of malaria, and a relentless campaign is still being waged against yellow fever wherever its danger-flag appears.

From the outset it was fully recognised by the Rockefeller Foundation that public health is essentially a function of government, and that continued advance in preventive medicine throughout the world depends upon an adequate supply of skilled public servants. To further the investigation of epidemic diseases, the Foundation has promoted training schools for health officers, nurses, and visitors, and contributions were made towards the establishment of schools of public hygiene. With regard to the conquest of yellow fever, it is remarked that "no other infectious disease has been so completely subjected to human control as yellow fever, since the day when stegomyia was found to be its intermediate host." The epidemic of 1920, with about 20,000 cases in its train, was conquered in Peru by 1921.

An interesting map is given of the retreat of yellow fever in 1900–1922 in the Western Hemisphere. There must, however, be no relaxation of vigilance. Equally satisfactory results were obtained in British Honduras, Mexico, Guatemala, and Ecuador as the result of unceasing efforts to eradicate stegomyia. The means adopted and the successes gained in combating malaria "at home" are described. Abroad the fight has been taken up, in response to official invitations, in Italy, where malaria is the outstanding health problem of the country, for, as the report concisely puts it, "with approximately 2,000,000 cases a year, the disease is not only a vital factor in the life and health of Italy, but a matter of serious concern on the economic side as well." In the anopheles belt all the conditions favourable to the breeding of a singularly virulent and hardy type of mosquito (*Anopheles maculipennis*) exist, while unfavourable housing conditions, and the migratory character of agricultural labour, all conspire to create a problem of the first magnitude. It was decided to send a representative to Italy during 1923 to make a survey. The Board is also coöperating with the Government of Palestine in the investigation of various malaria problems in that country. A campaign against tuberculosis has been conducted in France since 1917. At the end of 1922 there were 421 dispensaries at work, of which 301 were created on the initiative and with the coöperation of the Board. An educational campaign was also conducted on a national scale, practically the entire administration of which is now in French hands.

As an object-lesson of the value of public health work no better example can be given than the splendid achievements in the control of hookworm disease—a menace which threatens more than half the world, for 900,000,000 people live in the areas of infection. This menace can only be dispelled by spreading knowledge of the disastrous consequences of the disease and by instructing the people in the elementary practice of hygienic living. The gratifying results already obtained, and the further measures taken to exterminate the disease in Columbia, Paraguay, the West Indies, Central America, and the Far East, are recorded in the report. A survey is now proposed for Spain on the invitation of the Spanish Government. Encouragement as well as monetary assistance has been given liberally for public health agencies both in the United States and abroad; more especially in Brazil, where also a public health nursing service is being created. Not the least of the Board's successful efforts has been the development of public health laboratories in the Western Hemisphere and its coöperation with the League of Nations in the coördination of efforts against disease. Moreover, by way of broadening the base of health work by education, the Board in the past few years has aided in establishing the Johns Hopkins School of Hygiene and Public Health, the Harvard School of Public Health, the Institute of Hygiene at São Paulo, Brazil. In the Old World the Board has given help to a similar Institute at Prague, and one at Warsaw, as well as contributing more than 2,000,000 dollars towards the School of Hygiene in London, the plans for which are just beginning to take shape. Further, as public health services cannot be created by the supply of funds alone, and in order to aid in the development of leaders in the field of public health, Fellowships have been granted to carefully-chosen individuals. Seventy-nine men and women from 19 countries throughout the world have been thus appointed to carry out research in public health work. Some of these have left our own medical schools within the last few weeks, and their future work is a matter of keen interest on this side of the Atlantic.

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[1] New York: 61, Broadway.

THE ANCIENTRY OF MEDICAL ETHICS.

THE duty of the medical man towards his patient, his fellow practitioners, and himself has always been a matter of consideration, whether approached from the purely professional side or from that of the law; and if there exists no definite printed system of medical ethics to indicate conduct within the profession, it is because nothing more definite can be said than was said some 2000 years ago on an Eastern hillside. The code on which we act is founded mainly upon tradition for its details, but in spirit it relies wholely on the dictum that a man should do as he would be done by. It is useful to have recalled to our minds one of the best published codes of ethics in the English tongue—namely, the code drawn up by Dr. Thomas Percival, 1740–1804, of Manchester, wherein this spirit is fully recognised. Percival's work on medical ethics was first published in 1803, and is now known to few. However, Dr. CHAUNCEY D. LEAKE, of Madison, Wisconsin, has written an excellent little pamphlet[1] on the subject, giving a life of Percival and reprinting the code, the discourse on hospital duties being omitted on account of its length. Percival's career is set out at length in the Dictionary of National Biography. He was born at Warrington in 1740, studied medicine at Edinburgh, was made an F.R.S. in 1765, "because of his mathematical and philosophical learning," established himself in Manchester in 1767, and in 1778 was appointed physician to the Manchester Infirmary. It is interesting to note that he was among the first to call attention to the evils of the factory system, and especially to the abominable conditions of child labour. His code of ethics served as the model of that adopted in the United States, especially that put forth by the American Medical Association. Percival, of course, was not the first to formulate a code of medical ethics, as Dr. LEAKE records in his introduction. It is unnecessary to do more than mention the code of Hammurabi, the Hippocratic oath, and the regulations of Frederic II., A.D. 1224, while we may add to the instances given by Dr. LEAKE the advice laid down by Arnold of Villanova, Henry of Mondeville, Lanfranc, William of Salicet, and John Arderne a little later.

Percival's code, as given by Dr. LEAKE, is in four chapters. The first deals with professional conduct relative to hospitals and other medical charities, the second with that in private or general practice, the third with the conduct of physicians towards apothecaries, and the fourth with professional duties in certain cases which require a knowledge of the law. The code is in every way admirable, and may be studied with advantage by medical men to-day, although Section No. 3, dealing with apothecaries, is of course out of date; the apothecary whose services our grandfathers spoke of as "using the 'potticary'" has passed away, except in so far as some of his duties are performed by the general practitioner. The code is written in dignified eighteenth-century English, and is full of delightful paragraphs. We may quote from Paragraph VII. of Cap. I., dealing with the assistance which a medical man may give a hospital patient in making his will. "It is one of the circumstances which softens the lot of the poor, that they are exempt from the sollicitudes attendant on the disposal of property. Yet there are exceptions to this observation . . . ." The late Lord Bowen must, we think, have been acquainted with Percival's dictum when on rising to his feet after dinner he began thus: "It must have been no small solatium to the prophet Daniel under the somewhat trying surroundings of the lions' den, to be able to reflect that when the dread banquet was at an end, he would at least be free from the sollicitudes attendant on the responsibilities consequent upon having to return thanks."

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[1] Percival's Code: A Chapter in the Historical Development of Medical Ethics. By Chauncey D. Leake, Ph.D. Reprinted from the Journal of the American Medical Association, August 4th, 1923. Pp. 76.

Annotations.

"Ne quid nimis."

RESPONSIBILITY OF THE CRIMINAL LUNATIC.

THE current law, practice, and procedure, relating to criminal trials in which the plea of insanity is raised as a defence has been subjected to more or less criticism for nearly a century, such criticism reaching a peak in 1843 and in 1923, following the acquittal on grounds of insanity respectively of McNaghten[1] and Ronald True. Each of these trials aroused public feeling, and each was followed by an official attempt to investigate the sanctions on which the law was based and interpreted. The famous McNaghten rules were the outcome of one inquiry, and the report issued this week of the committee, constituted in July, 1922, by the Lord Chancellor, may prove the thread on which a pronouncement of hardly less importance will ultimately crystallise. The committee consisted of Lord Justice Atkin (chairman), Sir Ernest Pollock, Sir Leslie Scott, Sir Herbert Stephen, Sir Richard Muir, Sir Archibald Bodkin, Sir Edward Troup, Sir Ernley Blackwell, and Sir Edward Marshall-Hall, and the reference was as follows: To consider what changes, if any, are desirable in the existing law, practice, and procedure relating to criminal trials in which the plea of insanity as a defence is raised, and whether any and, if so, what changes should be made in the existing law and practice in respect of cases falling within the provisions of Section 2, subsection (4) of the Criminal Lunatics Act, 1884. The difficulties of the committee in arriving at their report were not lessened by the divergence between the views presented for their consideration by the British Medical Association and by the Medico-Psychological Association. It is the proposals of the first-named association with which the committee is in substantial agreement, and these are in the main conservative, favouring the retention of the existing law with certain modifications. The report of the Medico-Psychological Association, which would substitute other questions for the jury than those now submitted, was set out in full in our issue of April 7th last. The rules proposed by this body would, it is contended, throw upon the prosecution the onus of establishing that the insanity said to exist was not calculated to influence the act complained of, and, in default of the discharge of such onus would compel the court to order the accused to be detained during His Majesty's pleasure. In the opinion of the committee the effect of this change of procedure must be to transfer many inmates of prisons to criminal lunatic asylums, and to bring within the portals of the latter many persons who are now, without any public disadvantage, placed under the care of relatives. We reserve detailed comment on the findings of the committee, while welcoming its report as voicing the legal aspect of an admittedly difficult problem. The distinction between sanity and insanity, between grades of mental incapacity, and its bearing on responsibility for antisocial acts, has become less easy to draw as our knowledge of mental processes widens. It is not without significance that medical opinion was divided, and it is possible that the coöption of one or two medical members on the committee would have been helpful. We are to this extent in agreement with a conservative attitude at the present time—that the law works slowly, and that in the near future our ideas on psychiatry in the light of the more recent advances in psychology are likely to undergo drastic revision. The report of the Medico-Psychological Association, while it may not prove acceptable as a basis for immediate change in legal procedure, may well point the direction in which this change is likely to occur.

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[1] It is odd that the most diverse spellings of this name should occur in different, and sometimes in the same, legal or medical text-books. We have previously adopted the form M'Naughton, which is that given in "Reports of State Trials," New Series, 1892, vol. iv. (1839–1843). We now follow that of the official report.

BACTERIA DIGESTING CELLULOSE.

THE problem of the digestion of cellulose by man and animals is one of great interest, since it has shown that as much as 90 per cent. of ingested cellulose may disappear in the human intestine, whilst, on the other hand, it is well known that the digestive juices do not act upon cellulose. Consequently, attention has been directed to the influence of micro-organisms upon this capriciously resistant substance. Omelianski has especially studied the bacteria which attack cellulose, and has isolated two varieties, both anaerobic and both morphologically similar, but distinguished by the fact that one produces methane in abundance, whilst from the fermentation occasioned by the other hydrogen is liberated. Recently, at the suggestion of Weinberg, Mme. Y. Khouvine[1] has succeeded in isolating a similar organism from the human intestinal tract. This organism, which she designates the *B. cellulosæ dissolvens*, is an anaerobic, sporing bacillus which has extremely limited conditions of growth, and shows a slow but definite ability to digest cellulose with the production of carbon dioxide, hydrogen, alcohol, and various fatty acids. Curiously this organism, which can break down so complex a molecule as that of cellulose, appears quite unable to utilise the simple carbohydrates and sugars for its nutrition, or even to attack these when they are present along with cellulose. This specialisation with regard to the food requirements of the organism is of some interest in connexion with its rôle in the intestine, since the work of Mme. Khouvine would show that it liberates from cellulose substances having a certain food value without disintegrating other substances of this kind which may be present in the surrounding medium.

HYGIENE IN GIBRALTAR.

HYGIENE in Gibraltar is something of a special problem, for, while the total area of the territory is 1387 acres, that of the city is only 104 acres, and the population as estimated by the police at the end of 1922 consisted of 16,182 British subjects and a floating population of 1145 aliens. To these are added between morning and evening gunfire a daily visiting population of some 10,000 aliens and 1500 British subjects resident in La Linea. Major G. S. Parkinson's report for 1922 sets out the difficulties and how some of them have been met. There are three kinds of water-supply—namely, rain-water for drinking purposes, a brackish water for street flushing and sanitary purposes, and well-water for the shipping. Drinking-water is obtained from roof catchment areas by occupiers and stored in underground tanks. The city council have catchment areas and reservoirs in the Upper Rock, from which they supply the public and shipping after purification by 15 days' storage. At the beginning of June, 1922, the underground tanks of the houses became exhausted and supplies were obtained from Algeciras in tank boats. Samples of water from wells in La Linea were submitted but did not come up to the required standard. Many additional water vendors were licensed, a regulation being made for all water vendors to wear a brassard stamped with their registration number. The price of the drinking-water to shipping is 2*s*. per 100 gallons, to private houses 1*s*. 3*d*. per 100 gallons. Schemes for improving the catchment areas are under consideration, which will entail considerable outlay. There is a constant supply of brackish water laid on to every house for sanitary and general purposes. The water carriage system in force worked well during the year. Gibraltar has its housing problem also. A scheme for building 12 tenements was abandoned because the rentals would not have been economic. Much progress has, however, been made in getting existing houses into a better state of repair. Major Parkinson deals at some length with the high death-rate from pulmonary tuberculosis and its connexion with bad housing. He instances a case of eight persons living in one room, two being affected by pulmonary tuberculosis, one in an advanced stage. The campaign against street spitting often meets with derision from unenlightened quarters. Attention is being given to the schools. The flat roof of one school is used for open-air classes, for which the climate is well suited. A nursing sister from the Colonial Hospital visits the schools in turn and recommends for hospital treatment such children as seem to need medical attention. Unqualified midwives still flourish in the city, but steps are being taken to put an end to their employment. Of certified midwives there are at present seven in practice. The maternity ward at the Colonial Hospital does not as yet attract the class of woman for whom it was opened—viz., the poor woman living in bad surroundings, the usual reason given being that she cannot leave the other children. A beginning has been made with a child welfare centre, at which the attendances were one-third more than in the previous year and the opening of the new children's ward at the Colonial Hospital fills a long-felt want. The infant mortality-rate for the quinquennium 1918–22 was 113·2, as compared with 107·5 for the five years 1908–12. In spite of various relief works, the year 1922 was a hard one for many families on account of unemployment, and a supplementary grant of £700 was allotted by the Colonial Government to the Destitute Sick and Tuberculosis Scheme. In all 179 families received outdoor relief in the form of food tickets for meal and milk as against 158 families in 1921. The nurse appointed under this scheme paid 630 visits to sick people. The Gibraltar Home for Sick and Aged was full (54 inmates on Christmas Day) and its arrangements have been improved. An outbreak of rabies in the kennels on the North Front necessitated the destruction of all the hounds. The Muzzling Order was in force from March till October and, rabies being also reported at La Linea, restrictions were placed on the introduction of dogs. Inquiries elicited a reply from the Pasteur Institute that the preventive inoculation of dogs is as yet only in the experimental stages. The city council have enacted that all applicants for employment under their administration must be medically examined, and the procedure for the treatment of injured workmen at the Colonial Hospital has been greatly simplified.

MEMBRANOUS CONJUNCTIVITIS.

FROM the current *Bulletin* of the Ophthalmological Society of Egypt we learn that an epidemic of what was diagnosed as true diphtheritic conjunctivitis took place at Assiout last August and September among babies suffering from acute purulent ophthalmia. The infection was always mixed, and in no case could the diphtheria bacillus be demonstrated on smear preparations from the conjunctiva. Nevertheless, in 22 cases cultures proved that the disease was actually caused by the diphtheria bacillus. In a paper by Dr. A. F. MacCallan and Dr. Rasheed Bey the opinion is expressed that no reliance can be placed on the results of microscopical examination of smear preparations from the conjunctiva as regards the causative condition in suspected cases of diphtheria. It is essential to make cultures from the membrane if possible, or from the discharge. The growth on blood serum of typical colonies containing a bacillus which is morphologically identical with the diphtheria bacillus affords strong presumption that the case is actually one of diphtheria. It is, however, only by the isolation of the bacillus in pure culture and experimentation on the effect of injection into guinea-pigs that complete certainty can be established. This was done in four of the 22 cases. In only one of these cases was the conjunctival affection accompanied by faucial or nasal diphtheria; none of the cases was followed by paralysis of accommodation (it is not stated whether paralysis of the external eye muscles was noted). Sixty-three per cent. of these cases had ulceration of the cornea, and in half the cases one or both eyes were lost. As the clinical condition of the eyes may be exactly the same in membranous conjunctivitis whether it is due to the diphtheria bacillus or not, it is advisable to give one dose of the antitoxin without waiting for the bacteriological report, and in cases of doubt this should be repeated for some days, but as in real diphtheritic cases one of the effects is the rapid disappearance of the membrane, if this does not happen the probability is that the case is not diphtheritic. The important question arises when a case of membranous conjunctivitis comes to the surgeon whether it is advisable to isolate it. These authors, taking into consideration the uncertainty of clinical diagnosis, recommend that this should be done pending bacteriological proof. Another important prophylactic measure necessary in Egypt is to treat the patient in a fly-proof room or tent.

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[1] Digestion de la cellulose par la flore intestinale de l'homme: *B. Cellulosæ dissolvens*, n.sp. Mme. Y. Khouvine, Annales de l'Institut Pasteur, vol. xxxvii., No. 8, August, 1923.

Comparing this Egyptian epidemic with the cases reported in England—the late Mr. W. H. H. Jessop,[1] in 1902, reported 13 cases of membranous conjunctivitis, of which eight may be considered to have been proved to be diphtheritic, three of them indisputably so by the injection of products of culture into a guinea-pig. As far as the diagnosis between diphtheritic and non-diphtheritic cases goes, the membrane, he says, can in no way settle the point, the slighter cases being exactly alike. In only one of these cases was the eye lost, and most of them made a complete recovery. In the same year[2] Mr. Sydney Stephenson reported 43 cases of conjunctival diphtheria seen among 3412 out-patients, so that the affection, in his experience, is not such a very rare one. In every case the Klebs-Löffler bacillus was demonstrated, associated with other micro-organisms in about half. Antitoxin was administered in 23 cases, and of the whole series all but one recovered.

IS PRIMARY NON-GONORRHŒAL URETHRITIS COMMON?

WHEN, in a case of acute urethritis evidently not due to chemical or mechanical factors, gonococci cannot be found in the discharge, it may be difficult to make a definite diagnosis. A recent paper by Dr. E. Björling,[3] of Malmö, raises the question with which this annotation is headed, and answers it emphatically in the negative. He argues that when such cases of primary, so-called "non-gonorrhœal urethritis" are scrutinised and the history of the case is carefully investigated, evidence can almost invariably be found pointing to a comparatively recent or old infection with gonorrhœa. He has collected all the 18 cases of primary "non-gonorrhœal urethritis" in the male that he has seen within the last few years, and he has come to the conclusion that in none could the diagnosis of gonorrhœa be eliminated. He maintains that, now and then, a man may suffer from acute gonorrhœa without knowing of its existence; he may not be conscious of it till an acute posterior urethritis sets in with its usual discomforts, and if he escapes this complication, the attack may pass off and temporary recovery may occur without his knowing that he has suffered from gonorrhœa. Some years ago Dr. Waelsch described a urethritis which he regarded as non-gonorrhœal, both because the bacteriological evidence was negative and no history of gonorrhœa was forthcoming. Dr. Björling notes that the cases recorded by Dr. Waelsch presented many features characteristic of his own cases. In both groups the urethritis was remarkably refractory to treatment. This refractoriness can, to a certain extent, be explained by the assumption that the source of infection may be an undiagnosed case of gonorrhœa with which the patient continues to be in contact. Dr. Björling's paper is a sobering corrective to the attitude, still adopted in some quarters, according to which, when gonococci disappear from the discharge, the disease is regarded as cured. There are, unfortunately, conflicting views on this point. According to some authorities the so-called post-gonorrhœal catarrh—i.e., urethritis persisting after an attack of gonorrhœa, and without demonstrable gonococci—is not infectious. Dr. Björling and others regard this standard of recovery as far too lax, and his carefully annotated case records show that gonorrhœa may run a curiously subterranean, latent or symptomless course, digging itself in unobtrusively, and troubling the patient only after a long interval. A further lesson of Dr. Björling's paper is that many an obscure case of urethritis can be traced to the gonococcus if the physician takes the trouble to examine the partner with whom the patient is cohabiting.

PARATHYROID TETANY.

WHEN the parathyroids are completely removed, the result in the experimental animal is rapid death with acute symptoms, which generally takes the form of tetanic convulsions. Some experimenters hold that the function of the parathyroid is to render inactive certain toxins formed elsewhere in the body, in particular the decomposition products (amines) resulting from bacterial action on proteins in the intestine. An American physiologist, Mr. R. Lester Dargstedt, has recently conducted further research on this subject, of which an account is given in the current issue of the *American Journal of Physiology*. His experiments were made on dogs and he found that if the parathyroids were completely removed the animals remained alive for at least a year provided their diet contained a large amount of lactose. In pregnant animals, however, the lactose diet is ineffective, as those animals died of tetany, perhaps because the poisonous substances were absorbed by the uterus. If dogs, with parathyroids removed, were fed for six weeks on milk-sugar diet and then fed on ordinary diet they remained healthy. Perhaps other organs—e.g., the liver—take up the function of the parathyroids and compensate for their absence. This suggestion is made because if in these animals the liver is injured by poisoning with phosphorus, tetany develops. Animals deprived of their parathyroids are particularly susceptible to the onset of tetany. The administration of much flesh food, constipation, muscular over-exertion on a warm day, or infections of various kinds may excite its onset. Such animals are also much more susceptible to the action of spasm-producing poisons.

THE ERADICATION OF TUBERCULOSIS IN CATTLE.

A WELL-REASONED article by Prof. B. Bang, of Copenhagen, in the last issue of the *Journal of Comparative Pathology and Therapeutics* tells of 24 herds in Denmark which were freed from tuberculosis at small cost and not a few farmers rescued from the verge of bankruptcy by the measures Bang advocates. The principle of his method is to separate diseased from healthy cows by means of the tuberculin test, to isolate each group, and then to add, on birth, all calves of tuberculous cows to the healthy herd and to get rid of their tuberculous mothers. To save time the intracutaneous application of tuberculin is coming into favour. The reason for this plan is that calves are almost invariably healthy when born. They are brought up on their mother's colostrum on the first day, and later either on raw milk from healthy cows or on milk heated sufficiently to destroy tubercle bacilli. One of the farms successfully cleared up by this method was that which sent a supply of milk for infants—i.e., certified milk—into Copenhagen. Applications twice yearly of the tuberculin test to the healthy section have to be kept up to prevent introduction of the disease and to get rid of reactors. The fairly numerous cases statistically and narratively given by

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[1] Trans. Ophthalmological Society, 1902.

[2] Ibid.

[3] Acta Dermato-Venereologica, 1923, vol. iv., Fasc. 2.

Bang show that by this method, used with care and perseverance, even badly infected herds may be cleared up in a few years and a healthy stock produced. It differs from "the accredited herd plan" prevalent in America in that there all reacting animals are slaughtered, some compensation being given by the State. Bang's method is more economical and he shows that it can produce very excellent results; 1676 herds, comprising 47,627 cattle have been tested. This isolation method has given very great satisfaction also in Sweden, Finland, and Hungary. The query remains as to what becomes of the tuberculous cattle that are sold? Bang's article does not tell us. But this is a most important point. If the buyer is not under an obligation to slaughter forthwith, the transaction, from the prophylactic point of view, is somewhat like borrowing from Peter to pay Paul.

INTRAVENOUS INJECTION OF CAMPHOR.

CAMPHOR as a circulatory stimulant is in much greater esteem on the continent than in this country. Subcutaneous injections have long been used, especially for children, but it is only recently that it has been shown that camphor oil can with impunity be injected directly into the circulation, and that the reaction is immediate. The stimulating effect on the circulation of camphor oil given intravenously has recently been emphasised by Dr. Erich Schilling,[1] of Küchwald, in Chemnitz. Dr. Schilling has used camphor in this way in all cases of marked collapse. In particular has he found it useful in cases of poisoning, his material comprising some 45 cases. It is especially indicated in coma, following gas-poisoning, as illustrated by the following case: A girl was brought in who had lain for three to four hours in an atmosphere of gas. She was completely unconscious, and reacted only slightly to stimulation of the skin. Three minutes after injection of I c.cm. camphor oil she opened her eyes, sat up, asked where she was, and answered clearly all questions put to her. In only four cases, two of morphia and two of gas-poisoning, was no effect obtained with camphor. Even if it is granted that the majority of cases of gas-poisoning recover without any treatment, yet from Dr. Schilling's experience it is clear that consciousness returns much sooner after the use of camphor and thereby the danger of inspiration pneumonia is considerably decreased. Although consciousness is usually regained after the first injection, in severe cases the treatment may have to be repeated two or three times at intervals of six hours.

INCOME-TAX EXEMPTIONS IN THE DOMINIONS.

A RECENT publication [2] issued by Somerset House gives a wealth of information regarding Income-tax rules in different parts of the Empire. So far as has been observed, the only places in which there are special rules which have a direct interest for the medical profession are the Tanganyika Territory and the State of Victoria. The African colony has a primitive ring in its name, but its tax code is from the medical standpoint a model to the world. Perhaps the very existence of an Income-tax proves distinct progress in civilisation, and a code that absolutely exempts from taxation all profits from the practice of the profession of licensed medical practitioner or dentist, and from the sale of drugs and surgical, medical, or dental appliances to the practitioner's patients has obvious merits to our eyes. These are the only professions so selected for legislative grace, not even the church sharing in the distinction, which is surprising, for there are one or two Dominions in which clergymen are exempt. It will be understood that this Tanganyika concession is unconditional (except for the "licensed") and unlimited as regards amount of income. In Victoria, Australia, among the deductions allowed in bringing out the taxable income, in cases where the total income does not exceed £800, are payments in respect of the illness (including surgical treatment) of the taxpayer himself, his wife, or any of his children under the age of 21, to (1) any legally qualified medical practitioner or any public or private hospital, (2) any nurse, (3) any chemist. Dental treatment is not mentioned. There is a limit of £2 under each of these three heads, but that does not mean that not more than £2 will be passed, but on the contrary that, if the total expenditure on any one of those heads (we understand for one illness) *does not exceed* £2, it must be ignored. This is a novelty in Income-tax legislation. The next allowance in Victoria embodies another new idea—namely, £20 for the funeral of the taxpayer's wife or any minor child, but not of the taxpayer himself.

AGAR-AGAR.

Agar-agar is an interesting substance, although little appears regarding its properties in current manuals of materia medica. The U.S. Pharmacopœia, in which it is officinal, describes it as the dried mucilaginous substance extracted from *Gracilaria* (*Spærococcus*) *lichenoides* Greville and other marine algæ growing along the eastern coast of Asia, particularly several species of *Gelidium*, or *Gloiopeltis* (Class Rhodophyceæ). For many years these algæ have been used in the Far East under the various names of Ceylon moss, Japanese isinglass, and Javan alga for the preparation of foodstuffs, drugs, and adhesives. A decoction of these plants forms a jelly-like fluid, known as agar-agar, employed largely in some parts of Europe as a substitute for gelatin in the arts. The use of agar-agar in the preparation of bacterial culture-media is sufficiently familiar. It is noteworthy that a solution containing 0·5 per cent. of agar possesses the same adhesive strength as one containing 3 to 4 per cent. of the ordinary animal or fish glue. Commercially it is prepared by heating algæ in water in an autoclave at 120° C. for some hours; the viscous fluid is filtered while still hot, and the filtrate, after solidifying, is cut into strips. Gelatinisation, which does not take place unless the agar content is above 0·1 per cent., is due to gelose, a carbohydrate first described by Payen, who showed that a hot solution was coloured yellow by iodine, the colour changing to purple on cooling, and to blue on the addition of a few drops of H_2O_2. Gelose also reduces ammoniacal silver nitrate solutions on boiling. Agar dissolves completely in concentrated HCl or H_2SO_4; it is insoluble in glacial, but readily soluble in dilute acetic acid. Through the action of alkalies its solutions cease to gelatinise, but become much more adhesive; addition of borax gives the maximum amount of tenacity. Agar solutions do not reduce alkaline copper solutions except after prolonged boiling, and with most samples it is necessary to induce hydrolysis with H_2SO_4 before Fehling's solution can be reduced. No furfural reaction is given on heating with concentrated H_2SO_4. Agar is distinguished from gelatin by the fact that a precipitate results on the addition of sodium meta-phosphate to a boiling solution, while with gelatin there is no precipitate. Tannic acid precipitates agar from its solutions, but the precipitate redissolves on heating. Analysis of agar-agar has revealed the following constituents: 1. Carbohydrates: gelose. 2. A colloidal glue-like substance. 3. Starch. 4. A series of carbohydrate bodies such as pararabin, metarabin, xylose, and cellulose, all of which yield sugar on hydrolysis with dilute acids. 5. A slime soluble in water and of unknown constitution. Gelose is undoubtedly the most important of the constituents. This body was at one time thought to be identical with pararabin, but this can be disproved by the fact that on hydrolysis gelose yields galactose whilst pararabin does not. The provisional formula $C_{24}H_{38}O_{19}$ (i.e., $4C_6H_{10}O_5—H_2O$) has been allotted to it. Pharmacologically little is known about agar-agar. It is used in the East to a limited extent as a food, although according to Saiki the human digestive tract is able to utilise but a very small percentage of the food value. Administered by the mouth it is stated to reduce the coagulation-time of the blood. Gelose is said to draw water into the gut and hence to act as a saline purge. Certainly by absorbing water from the stomach and increasing the bulk of the intestinal contents it acts as a laxative, a dose of 8–15 g. being employed for the purpose. A powerful anaphylatoxin results from digesting agar with guinea-pig serum. Finally, since marine algæ are continually discharging agar into the sea the question has been raised why it does not accumulate in the sea-water. The answer is apparently that sea-water contains bacteria which are capable of digesting it. Much information about agar-agar is contained in Abderhalden's useful "Biochemical Lexikon."

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[1] Deutsche med. Wochenschrift, Nov. 2nd, 1923.
[2] H.M. Stationery Office. Price 5s.

SCIENCE IN THE KITCHEN.

THE French have always placed the good cook among the artists, and now, it would appear, they would make him a scientist too. The Under-Secretary of State for Technical Education in France has decided to patronise the Scientific Society of Alimentary Hygiene, and thus, supported by the Government, classes have been organised for teaching the "higher culinary arts." To boil a potato or to grill a chop hardly calls for a specialised medico-chemical training, and yet doubtless when the chef aims to strike some harmonious gastronomic chord, chemistry should decide what is wholesome, while medicine may indicate the particular requirements of the invalid. The State lecturer, it may be presumed, will deal with the hygiene of food, with the technique of cooking, and with the preparation of dishes to meet invalid needs. He will also be informing on the purchase of foodstuffs, but if here he can teach the French housewife anything he will be a wondrously well equipped man. The staff of instructors includes Dr. Hemmerdinger, an experienced lecturer on domestic economy; Dr. Henri Labbé, professor in the Faculty of Medicine at the University of Paris; and Mr. Martel, member of the Academy of Medicine and director of veterinary services under the Prefecture of Police; and we see here indicated three main directions of instruction outside the ordinary cooking lesson, the hygienic claims and the need for thrift being considered and some knowledge of substituted foodstuffs being imparted. The classes will meet in the forenoon every Thursday, at 2, rue Clotilde, Panthéon (5^e), and pupils are to be enrolled at the offices of the Scientific Society of Alimentary Hygiene, 16, rue de l'Estufade, Panthéon (5^e).

THE Thomas Vicary Lecture will be delivered in the Royal College of Surgeons of England by Sir Arthur Keith, F.R.S., on Dec. 7th, at 5 P.M., the subject being the Life and Times of William Clift, First Conservator.

THE collection of drawings of war injuries of the fundus oculi, presented by Dr. W. Wallace, late Temp. Captain, R.A.M.C., to the Army Medical War Museum, is now available for study at the museum of the Royal College of Surgeons of England.

DONATIONS AND BEQUESTS.—During the past month the Royal Manchester Children's Hospital has received subscriptions and donations amounting to £852, including £200 from deceased benefactors, and £200 from the Salford Corporation.—By the will of the late Mr. James Mackersie, of Randolph-gardens, Broomhill, Glasgow, the testator left, among other bequests, £2000 to the Royal Infirmary, Glasgow; £2000 to the Western Infirmary, Glasgow; £2000 to the Victoria Infirmary, Glasgow; £500 to the Glasgow Benevolent Society for the relief of the destitute sick and those in extreme poverty; £250 to the Princess Louise Scottish Hospital for Limbless Sailors and Soldiers; £250 to St. Dunstan's Hostel for Blinded Soldiers, Regent's Park, N.W.; and £250 to the Royal Hospital for Sick Children.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLVII.—TREATMENT OF COLLES'S FRACTURE.

THE classical fracture involving the lower extremity of the radius described long ago by Colles, of Dublin, is a relatively uncommon type of injury. But the term Colles's fracture to-day is held to include most complete fractures of the radius located within an inch of the lower articular surface of this bone. These fractures are seen at all periods of life, but are frequently sustained by elderly females. Before the age of 20, a separation of the lower epiphysis of the radius is the equivalent of the fracture of later life. In most instances a Colles's fracture is produced by a fall on the outstretched hand, the point of impact being the palmar aspect of the fully extended wrist. A compressing force is transmitted upwards and the radius breaks across at its weakest spot. Less commonly the back-fire of a motor starting handle may wrench off the lower end of the radius, but the most frequent radial back-fire lesion is a crack running through the site of the old epiphyseal line.[1]

The line of a Colles's fracture is roughly transverse. Impaction almost always occurs, but gross comminution is rare. The displacement of the lower fragment is largely determined by the direction of the transmission of the violence, and occurs in three planes: (1) The lower fragment is forced upwards and backwards en masse, and becomes jammed into the cancellous tissue of the shaft. (2) This fragment is deviated radialwards, and with it the hand. (3) A rotation occurs on a transverse axis, a hinge-like movement, so that the articular surface now looks downwards and backwards instead of downwards and forwards. The styloid process of the ulna is subjected to great strain, and finally fractures at its tip. Sometimes the attachment of the triangular fibro-cartilage to the base of the ulnar styloid is torn through, allowing an undue amount of separation between the lower ends of the two forearm bones. Often no appreciable deformation is recognisable.

Clinical Features.

Within a few hours considerable swelling develops in the wrist, dorsum of the hand, and lower third of the forearm, and may mask any slight bony deformation; if crepitus cannot be demonstrated, a fracture may not easily be recognised. A displacement, such as the "dinner-fork" deformity of the older text-books, is rare; usually the signs suggest little more than a severe contusion or strain. Comparison of the injured limb with its fellow of the opposite side allows minor degrees of displacement to be appreciated. These include (1) a radial deviation of the hand; (2) a palpable swelling involving the region of the lower fourth of the radius with a loss of the normal anterior concavity of this bone. This change in shape depends on (*a*) the projection of the lower end of the shaft on the flexor aspect of the wrist, and (*b*) the projection of the backwardly displaced lower fragment on its extensor aspect. The overlying tendons add to the localised bulge in both areas. Crepitus may be elicited in unusual cases, but is generally absent. (3) The radial styloid process may be displaced slightly upwards so as to be on the same level, or even higher than its fellow bone. The absence of a relative alteration in the position of these points does not contra-indicate the diagnosis of fracture. (4) The rounded lower end of the ulna is abnormally prominent. A radiogram, which should be taken without delay, will confirm the diagnosis and disclose the extent of the fracture and the plane of displacement. After 24 hours the swelling of the soft parts may rapidly increase, particularly in elderly people. The fingers become swollen and of a sausage shape, and the whole region is exquisitely painful and tender.

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[1] Bizarro: Surg., Gyn., and Obstet., May, 1922.

The skin often becomes glossy, and the fingers and wrist-joint lose mobility. In younger individuals this picture is characteristic of the neglected case.

The whole of the upper limb should be inspected and palpated, as a contusion of the shoulder-joint may be produced by the same force that caused the fracture, and may be overlooked until the development of stiffness and pain many weeks later indicate the existence of a traumatic periarthritis or actual adhesions within the joint capsule. A fracture of the *scaphoid* may be produced by the same type of violence as a Colles's fracture. The two lesions may occasionally coexist. Signs which in themselves suggest a scaphoid lesion are (*a*) swelling and tenderness located to the scaphoid area (the anatomical "snuff-box"); and (*b*) pain elicited by abducting the thumb or extending the wrist.

Recent Impacted Cases with Obvious Deformity.

In every Colles's fracture, with displacement seen within the first few hours of the injury, complete and perfect reduction should be aimed at. In non-impacted cases, where there is gross displacement, reposition may sometimes be obtained with ease. But where impaction with deformity is present, considerable force may be needed to correct the displacement of the lower fragment. Under such circumstances it is wise to have the patient fully anæsthetised. Disimpaction without an anæsthetic is a manœuvre for the expert fracture surgeon only.

(*a*) *Reduction.*—The traditional method of reduction—often called the "hand-shaking" method—where an indirect force is utilised, is open to many objections on mechanical grounds. The employment of a direct corrective force applied to the displaced fragments by means of the thenar eminences of the hands of the surgeon is a far more logical and effective procedure. This method, introduced long ago by H. O. Thomas, of Liverpool, has been taught repeatedly by Sir Robert Jones, and is now practised widely. With the lower fourth of the radius controlled directly by the surgeon in this way, disimpaction may be achieved and the lower fragment brought forwards, the rotation and radial deviation being corrected at the same time. The outstanding sign of a perfect reposition is the restoration of the anterior concavity of the radius in the fractured area. Also, the normal relation of the styloid processes should be capable of demonstration. The accuracy of the correction is best appreciated when the wrist is fully flexed.

(*b*) *Retentive Splinting.*—Where a definite impaction with displacement has been reduced there is always a tendency to redisplacement, and accurate splinting is thus necessary to prevent a recurrence of the deformity. Many "special" splints have been devised for the treatment of Colles's fracture, but most of them are suitable for cases where no displacement exists, and where splinting is really unnecessary. The most efficient and comfortable control of a reduced Colles's fracture is attained by the use of two ordinary gutter-shaped fracture splints made of light sheet iron or aluminium, the latter possessing the advantage of being permeable to the Rontgen rays. Two corrective gauze pads are first placed in position, one on the extensor aspect exerting a forward thrust on the lower fragment, the other at a higher level on the flexor aspect of the forearm to control the upper fragment. The application of the splints holds the pads in place, and the fracture is now secure. The posterior splint extends from the outer condyle of the humerus to just behind the metacarpo-phalangeal joints; the anterior splint from the elbow to the base of the thenar eminence. A turn of adhesive strapping above and below ensures fixation, but the addition of a bandage is a wise precaution. Following the practice of the Liverpool School, the splints should be twisted spirally but in opposite directions before their application. By this means the forearm is supported in four planes instead of two, and sagging of the ulna prevented. The splinted limb is now suspended in a sling with the elbow at right angles.

(*c*) *After-treatment.*—The fingers being left free, the patient carries out active movements of all digits from the first. If œdema is marked, very light massage may be instituted, but must be limited to the area exposed. It is usually unnecessary to take off and readjust the splints before the fourth day, and often they may be left until the end of the first week. From this time onwards one splint may be removed daily and the lightest massage applied to a much greater area provided (*a*) the fracture shows no tendency to redisplacement, and (*b*) the services of a masseuse specially trained in the treatment of recent injuries in a large fracture clinic are available. During such treatment the position of the fragments must be absolutely controlled, and at the conclusion of each sitting the pads and splints replaced accurately. By the end of the second week gentle *active* movements of the wrist may be attempted, the fracture meanwhile being controlled between the thenar eminences of the masseuse. In addition, a short range of pronation and supination should be essayed. Any increase in pain, tenderness, or local swelling after such movements is an indication that the masseuse is going ahead too rapidly. The splints are retained on the average until the end of the third week, when the fracture should begin to feel firm. At this stage it is a wise precaution to keep on one splint or two smaller light splints merely as a guarding apparatus, for it must be remembered that the callus is easily strained. The range of movement at the wrist and radio-ulnar joints should be increased by gradual degrees. Active movements, which are now carried out with little or no discomfort, should be supplemented by gentle assisted movements. It may be emphasised here that the traditional *passive* movements have no place in the treatment appropriate to this stage. By the sixth week there should be an absence of any œdema of the hand or forearm, the fingers should be mobile, and the wrist capable of taking a fair degree of strain without reaction. The sole remaining disability will probably be a slight limitation of supination, usually remedied by passive stretching by the masseuse. Finally in the gymnasium the wrist is tested by special exercises. The cosmetic result obtained varies considerably, but in many cases where the symmetry of the wrist is not restored perfect function may be seen.

Recent Impacted Cases without Obvious Deformity.

In these cases a radiogram may often reveal the existence of slight rotation of the lower fragment, and it is not uncommon to notice at a later stage that the radius is definitely shortened and the lower end of the ulna unduly prominent. In the presence of such anatomical defects, full functional capacity may be restored by the *immediate* institution of the physio-therapeutic measures already detailed. Although splinting is unnecessary to maintain correction, it adds to the comfort of the patient if light aluminium splints are worn for the first week. On the advisability of correcting barely appreciable displacement opinions are divided, but it is generally agreed that in elderly people no attempt should be made to disimpact, nor in cases seen a week or more after the accident.

Treatment of Neglected Cases.

Where there is gross deformity or actual malunion accompanied by disabling sequelæ, operative correction is indicated, but not necessarily open exploration. Up to two weeks from the time of the injury it may be corrected by manipulation alone, or by means of the Thomas wrench. After the third week an open operation will be advisable, and should consist in merely cutting through the line of union and replacing the lower fragment without employing internal fixation. In elderly patients it is rarely wise to undertake operative measures, and an attempt should be made to restore function by physio-therapeutic treatment, the deformity being ignored.

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Special Articles.

THE SHORTAGE OF NURSES:

SOME PROPOSALS FROM AMERICA.

THE shortage of suitable candidates for the nursing profession is not confined to this country. It is keenly felt in the United States, and a study of an exhaustive investigation of the reasons for this shortage in America shows that, though the conditions of training and subsequent responsibilities of nurses are not identical in the two countries, the problems to be faced are closely allied.

The Rockefeller Inquiry.

We set forth below the results of an inquiry by a committee originally appointed by the Rockefeller Foundation in January, 1919, to study the proper training of public health nurses.

There are at present two distinct types of public health nursing practice in the United States—that in which the nurse confines herself to the teaching of hygiene, and that in which such didactic work is combined with the actual care of the sick. A third type of visiting nursing, in which bedside care is given with no official educational service, as in our own district nurse systems, may be observed but is less common. The advantages of the second type, of combined instruction and care, are well set out in the report and should receive the attention of the district nursing associations and of local authorities in this country. The nurse who approaches a family where sickness exists and renders direct technical service in mitigating the burden of that sickness has an overwhelming advantage, then and thereafter, in teaching the lessons of hygiene. It is noted in the report of the committee that the relative lack of nursing personnel in Europe has there led to the attempt to train health visitors of the purely instructive type for dealing with special individual problems, such as tuberculosis or child welfare, by training courses much shorter than those required for the preparation of the nurse, but it is maintained that, at any rate for conditions as they exist in the United States, the teacher of hygiene in the home should be equipped with no less rigorous training than that accorded to the bedside nurse, further supplemented by special studies along the lines of public health and social service. Since this view is generally accepted in America, it soon became clear to all concerned that the entire problem of nursing and of nursing education, relating to the care of the sick as well as to the prevention of disease, formed one essential whole, and in February, 1920, the Foundation requested the committee to broaden the scope of their inquiry to include "a study of general nursing education, with a view to developing a programme for further study and for recommendation of further procedure."

The outcome of this inquiry has now been issued in book form.[1] It is the provision of sufficient competent nurses for the sick and the need of attracting good probationers to the nursing school that are problems of even more urgent importance in this country than the provision of public health nurses, and it is to the section of the report dealing with these that we propose to direct attention. There, as here, there is much discussion as to the quantitative and qualitative adequacy of the nursing service. As to the first point, according to the committee the reason why many persons who need nursing care in hospitals and in the homes of the poor fail to receive it is to be sought in economic factors rather than in a shortage of nurses. In regard to the quality of the nursing service available at the present day more radical differences of opinion are to be found. Private physicians frequently express the view that for ordinary nursing even the graduate of the existing training school is "over-trained," that the service which she renders is too costly, and that a woman with a very brief training in bedside routine would be as satisfactory, or perhaps more satisfactory, than the average registered nurse. As a result of this feeling there have been persistent and vigorous efforts in certain quarters to break down the standards of nursing education which have been laboriously built up during the past 20 years.

Two Grades of Nurses.

In so far as these efforts would remove the safeguards which guarantee to the patient suffering from acute disease, and to the physician caring for such a patient, the quality of service necessary for safety, it is felt that they constitute a real danger to the cause of public health. But having made this point, the committee proceed to give careful consideration to the question whether there is not scope for two grades of nurses, and conclude that for the care of mild and chronic illness and convalescence it may well be that a different type of capacity and training may be necessary. It seems clear to the committee, however, that, if two types of nursing service are desirable, the distinction should be drawn, not on economic grounds, but according to the type of illness involved. Careful estimates from 118 graduate nurses indicated that during a period of three months one-quarter of their time was spent on cases which could have been cared for by an attendant of the partially trained type. A somewhat similar estimate was obtained from 48 practising physicians, 21 believing that trained nurses were unnecessarily employed for less than a quarter of their cases, 17 placing the figure between one-half and three-quarters, and 10 at over three-quarters.

A subsidiary nursing service would be no new development. The "practical nurse," alias the "trained attendant," is an existing fact: and in the opinion of a large group of the medical profession who utilise her services she fills a real place in the complex problem of caring for the sick. On the other hand, the danger in the existence of a loosely-defined and unregulated group of partially trained workers, in the same field as a more highly educated type, constitutes a real and serious complication. The nursing profession has discharged a fundamental duty to the public in stimulating the development of registration laws, which define and delimit the practice of that profession, and protect the community against fraud and exploitation by those who assume responsibilities to which their qualifications do not entitle them. In addition to the registration of the trained nurse it is considered essential that the lower grade of nursing service should also be defined and registered, and the States of New York, Missouri, California, Michigan, and Maryland have taken definite steps in enacting legislation towards this end.

The Name for the Subsidiary Group.

The name to be selected for the subsidiary group is a difficult problem. As is so often the case, the root of disagreement lies largely in nomenclature. The title "attendant" is distasteful to those who bear it and tends to discourage the enlistment of those who may desire to enter this field. On the other hand, the term "practical nurse" assumes a most unfortunate antithesis between education and practice, and the splendid professional and public service rendered by "the nurse" in war and in peace, entitles her to the protection of her existing professional status. The term "nursing aide" or "nursing attendant" is suggested as that which best meets the need for clear differentiation, while providing the subsidiary worker with a suitable name. With two distinct grades of service available, the individual physician would be responsible for the choice of a trained nurse or a nursing attendant in a given instance. The subsidiary type of worker would serve under practising physicians in the care of mild and chronic illness and convalescence, and possibly assist under the direction of the trained nurse in certain phases of hospital and visiting nursing.

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[1] Nursing and Nursing Education in the United States (Report of the Committee for the Study of Nursing Education). New York: The Macmillan Company. 1923. 15s.

The Hospital Training School.

The development of the hospital training school for nurses constitutes a unique chapter in the history of education. In almost all fields of professional life education has begun on a basis of apprentice training. The first law schools and the first medical schools were the outgrowth of the lawyer's and the physician's office. In nearly all other fields than that of nursing, education has outgrown the apprentice stage and leadership has passed into the hands of independent institutions, organised and endowed for a specifically educational purpose. The training of nurses, on the other hand, is still in the main directed by organisations created and maintained for the care of disease rather than for professional education. The progress which has been accomplished under such anomalous conditions is such as to reflect high credit upon both hospital administrators and the leaders of the nursing profession. Yet the conflict of interests between a policy of hospital administration, which properly aims to care for the sick at a minimum cost, and a policy of nursing education which with equal propriety aims to concentrate a maximum of effective training into a minimum time, is a real and vital one. The fact that the nursing profession fails to attract students in the number, and of the quality desired, strongly suggests that there is some shortcoming in the established avenues of approach thereto. The hospitals themselves, depending as they do so largely upon student nurses for their routine operation, have found themselves seriously handicapped by the small number of well-educated applicants. Inspection of 23 training schools representative of the best current practice in nursing education revealed some interesting points. For example, in some cases theoretic instruction was at fault; in others, ward duties appeared to be largely dictated by the need for hospital service rather than by the educational requirements of the students. This was evidenced by the astonishing irregularity of the time spent on different services by individual students and by the marked deviation between the duties actually performed and those scheduled in the official programme of the course.

The supervision of work in the wards was in certain instances notably inadequate. In only a few brilliantly exceptional cases was the ward work purposefully correlated with theoretical instruction. The lack of an intelligently planned progressive training was obvious in a large number of the hospitals studied, first year students often being found in positions of responsibility for which they were wholly unprepared, while seniors in another ward were repeating an educationally idle and profitless routine. Most striking of all was the factor of time wasted in procedures essential to the conduct of the hospital but of no educational value to the student concerned. Hours and days spent in performing the work of a ward maid, in putting away linen, in sterilising apparatus, in mending rubber gloves, in running errands, long after any important technique involved had become second nature, accounted in one typical hospital operating under the eight-hour system, where this problem was specially studied, for a clear wastage of between one-fourth and one-fifth of the student's working day.

The total amount of time assigned to ward service under the conditions which obtain in many hospitals is, in itself, a fairly complete obstacle to educational achievement. The selected group of hospitals, in this respect above the general average, showed a median day of between 8 and 8·5 hours on ward duty alone, exclusive of all classroom instruction. Irregular, excessive, and unproductive night duty was the rule rather than the exception. Crowded and unattractive living conditions tend, in certain hospitals, to impair the morale of the student body, and an atmosphere of autocratic discipline frequently prevents the development of a psychological atmosphere favourable to effective coöperative effort. It is emphasised that such shortcomings as have been pointed out are not fairly chargeable to deliberate neglect on the hospital authorities or nursing superintendents. In so far as they exist, they are due to the inherent difficulty of adjusting the conflicting claims of hospital management and nursing education, under a system in which nursing education is provided with no independent financial endowments for its specific ends.

Suggested Improvements.

The difficulties, however, are not insuperable. Each of them has been overcome in some schools and most of them in certain of the best schools. But that does not affect the view of the committee that one of the chief reasons for the lack of sufficient recruits of a high type lies in the fact that the average hospital training school does not offer a sufficiently attractive avenue of entrance to the nursing profession. Their recommendations for the improvement of the hospital training school include a raised standard of educational attainments for student nurses; a preliminary term of four months' training in the basic sciences and in elementary nursing procedures with appropriate ward practice but without regular ward service; and a period of 24 months (including two months for vacation) devoted to a carefully graded and progressive course in the theory and practice of nursing, with lectures and ward practice so correlated as to facilitate intelligent case study, and with the elimination of routine duties of no educational value. The working day for the student nurse, including ward work and classroom periods, should not exceed eight hours. The working week should not exceed 48 hours and preferably 44 hours. By such an organisation of the course of study, and particularly by the elimination of unrewarding routine service, it is held that the period of training might be safely shortened from the present standard of three years to 28 months. Such a saving would mean an increase of over 20 per cent. in the potential output of the training school through the saving of time alone. The shortening of the course would, in itself, prove an attraction to the prospective student, but the main consideration to be kept in view is that the shorter course projected would not imply a lowering but a raising of educational standards. It is the experience in every other field of education that the way to attract students is to raise standards, not to lower them. The fundamental essentials to the success of a training school planned on these lines are that it must be directed by a board organised for the primary purposes of education. The interests of hospital management and of educational policy must necessarily at times conflict, and unless the educational viewpoint is completely represented the training school will infallibly suffer in the end. In the second place it is fundamental to the success of nursing education that adequate funds should be available for the educational expenses of the school itself, and for the replacement of student nurses by graduate nurses and hospital helps in the execution of routine duties of a non-educational character. A satisfactory relationship between school and hospital demands careful cost-accounting and a clear analysis of the money value of services rendered by the school to the pupil and the hospital, and by the hospital to the pupil and the school.

The course of 28 months discussed above would furnish the complete education for a student desiring to practise as a bedside nurse in private duty or in hospitals and other institutions, and its completion should entitle her to a diploma in nursing and to State registration. For the nurse who desires to specialise along either of the more advanced lines of public health nursing, or hospital supervision and nursing education, a further period of post-graduate training is desirable.

Educational Provision for the Subsidiary Type of Nursing Service.

In the view of the committee there is a real place for a subsidiary type of nursing service, to be used in the institution and in the home for the routine care of patients suffering from disease of a mild or chronic type or in convalescence. It is pointed out that, whether approved of or not, this subsidiary nursing service is an existing fact, and that women whose only training is, say, a course in home nursing of a few weeks' duration, such as those conducted under the auspices of the American Red Cross, are actually engaged in nursing chronic cases throughout the country. Since the existence of the subsidiary nursing group is a concrete fact, and in view of the valuable results to be derived from the service of this group in a definitely restricted field, it is considered that specific provision should be made for the training of workers of this type.

The special hospital not served by affiliation with a school of nursing, and the small general hospital whose facilities are inadequate for the maintenance of a nursing school of standard grade might be considered as training grounds. The requirement for entrance should be a grammar-school course or its equivalent and the period of training approximately eight or nine months. It is essential in providing for this type of education that hospital patients should be protected from malpractice and students from exploitation by an adequate graduate nursing service for the care of acute illness and for supervision of the students. Again, therefore, reasonable financial support must be assured before this, or any other, educational enterprise can be honestly undertaken. It is further believed that a useful development in the training of nursing aides can be expected only when the standards of the schools for such aides and their activities after graduation are controlled by a properly safeguarded system of State legislation, such as now exists in Missouri. The Missouri Act is unusually effective in providing that "no person shall practise as a nurse for hire or engage in the care of the sick as an attendant for hire unless licensed by the Board."

The Financial Problem.

It is held that the educational plan outlined above is sufficient for the solution of the problems involved in securing an adequate nursing service of all essential types. The school for nursing aides would provide the subsidiary worker needed for the care of the mild and chronic and convalescent case. The hospital training school, with adequate funds and an independent educational organisation, would attract more candidates and better candidates and would prepare them adequately for the nursing of acute disease. The university school of nursing would prepare the leaders in public health nursing, in hospital supervision, and nursing education and would inspire and standardise the entire movement. It is clear that the attainment of these ends requires financial support. It is time, in the view of the committee, that the hospital should be relieved from the dilemma of exploiting student nurses on the one hand, or of diverting funds given for the care of the sick on the other, by the provision of endowment specifically devoted to the purposes of education.

NATIONAL MILK CONFERENCE.

Discussion on Pasteurisation.

About a year ago a conference on the milk problem was held at the Guildhall, London, convened by the National Clean Milk Society, and supported by a large number of societies interested in the public health, in agriculture, and in the dairying trade. On Nov. 21st, 1923, a second conference was held at the Guildhall under the same auspices and attended by many representatives of local sanitary authorities and the trades concerned, including representatives from the overseas dominions and foreign countries. The object of this second conference, as Mr. Wilfred Buckley, who presided at the morning session in the unavoidable absence of Lord Astor, explained, was to throw light on all matters connected with pasteurisation.

Trade Aspects.

Six papers were read and discussed, and of these three were concerned mainly with the trade side of the question. Dr. Richard Seligman dealt with the history of methods and apparatus, and explained the difficulty of ensuring that every particle of milk passed through an apparatus had been kept at the desired temperature for the desired period of time. He expressed the opinion that this result was as yet satisfactorily obtained by only one type of "positive holder" machine, but that the last word had not been said. He appealed to scientific men to help in perfecting methods, seeing that pasteurisation is, at the moment, absolutely necessary for the liquid milk trade. Mr. J. H. Maggs (United Dairies, Ltd.) considered the financial and commercial aspects of the question, and Mr. A. T. R. Mattick, B.Sc. (Reading Institute), dealt with the alterations of the cream line and cream layer caused by the various temperatures used for pasteurising. This is also a trade question. As long as the fat is in the milk, it does not matter from a public health or nutritional point of view how much of it comes to the top. To many people one of the attractions of homogenised sterilised milk in bottles is that the cream will not separate. However, the public naturally judge the richness of the milk from the thickness of the cream layer, and it was satisfactory to learn from Mr. Mattick that if the milk is held for 30 minutes at a temperature not exceeding 145° F., there is not likely to be much alteration in this layer. The other three papers dealt with the chemical, bacteriological, and so-called biochemical changes.

Chemical Changes in Pasteurised Milk.

Prof. G. B. Schryver (Imperial College of Science and Technology) introduced the subject of chemical changes. His paper did not suggest that any appreciable change was likely to occur as the result of a temperature of 145° to 150° F. for 30 minutes. He referred to the question of the alteration of the calcium and phosphate content of milk by heat and the possible precipitation of some of the calcium phosphate. He also mentioned the work of Daniels and Loughlin at Iowa University in 1920 on this subject, but, as these observers used boiling temperatures, their results had no bearing on the present instance. Mr. G. W. Monier Williams, Ph.D., following Prof. Schryver, said that as far as we knew chemical changes up to 145° F. were very slight. Lactalbumin was not coagulated, the action of rennet on milk was unaffected, and the calcium phosphate was not separated from the casein. Pasteurisation diminished the acidity and raised the freezing-point, but these results might be due to the driving off of the carbonic acid contained in fresh milk. Capt. Goulding (Reading Institute) thought we could not speak with certainty as to the meaning of the apparently small changes which took place at 145° F.

Bacteriological Changes.

Prof. J. M. Beattie (Liverpool) read a paper on the bacteriology of pasteurised milk. He submitted the results of examining samples of pasteurised milk in all parts of the country, which indicated that pasteurisation as at present carried out was anything but satisfactory. Prof. Beattie went on to quote the very conflicting results obtained by various observers as to the thermal death-point of the tubercle bacillus in milk, and expressed his doubt as to whether 30 minutes at 145° F. would render milk safe in this respect. Capt. S. R. Douglas (Medical Research Council) and Dr. R. Stenhouse Williams (Reading Institute) expressed the same doubt. Dr. Thomas Orr (Ealing) spoke in favour of the "positive holder" apparatus and considered that milk held at 145° F. for 30 minutes was good commercially and safe for the consumer. He quoted the results of Dr. F. W. Campbell Brown, of

Aberdeen,[1] which showed that 30 minutes at 145° F. or 5 minutes at 163° F. would kill the tubercle bacillus in milk. Dr. Stenhouse Williams emphasised the need for the education of the workers, whether in the cowshed or in the milk dealer's premises. Good apparatus alone was not sufficient; it must be handled by people with knowledge.

Biochemical Changes.

Prof. F. Gowland Hopkins (Cambridge) dealt with enzymes, immunising bodies, and vitamins. Some of the enzymes appeared to be of bacterial origin. They seemed to be rather accidental than essential constituents of milk. Their action was slight, we did not know that they were of any use nutritionally, and their destruction in pasteurisation appeared to be unimportant. The immunising bodies were of no use to the human species, though their presence in milk was one more argument for breast-feeding. The three or four vitamins were all present in milk, nicely balanced, and in quantity leaving little margin of safety. Only vitamin C was likely to suffer from heating processes and could easily be compensated for. He did not favour pasteurisation, as even if there was no proved biochemical harm, his work gave him a bias in favour of altering foods as little as possible. Dr. Harriette Chick (Lister Institute), following Prof. Hopkins, referred to a New York outbreak of scurvy as a result of the temporary abandonment of orange-juice among babies fed on pasteurised milk, and which was ended by the resumption of the orange juice. She emphasised the danger of repeated pasteurisations, instancing her experience in Vienna. Dr. S. S. Zilva (Lister Institute) mentioned that vitamin C was less easily destroyed by heat than was at one time thought, if alkalinity and oxidation were provided against.

In the concluding general discussion Dr. Eric Pritchard, summing up, thought that the views expressed indicated that the changes caused in milk by pasteurisation, as defined by the new regulations, were unimportant, and this was entirely in accord with his own experience.

Advance or Makeshift?

Dr. W. G. Savage (Somerset) said pasteurisation was a short cut in public health and a confession of failure. He hoped the recent agitation for cleaner milk would not be discouraged. The trade was up against the dilemma, "what is safe is not nice and what is nice is not safe." None of these apparatus was fool-proof. There were three cardinal points if pasteurisation were adopted as a temporary expedient. These were: (1) Efficient control, (2) a guarantee against repeated pasteurisation, (3) no hindrance to progress in obtaining better milk. Prof. H. R. Kenwood (Stoke Newington) said more knowledge was needed. Conflicting views were partly due to the loose use of the term "pasteurisation." He thought Prof. Beattie's results had been unsatisfactory because the milk had not been treated in the most up-to-date "holder" machines. He favoured the idea of a team of experts, appointed in coöperation with the trade, for the purpose of endeavouring to settle the points on which opinions were at variance. This suggestion was strongly supported by Lord Dawson, who took the chair during the afternoon session.

On the whole, the impression the conference left in our minds was that no appreciable advance in knowledge could be recorded since the Guildhall meeting a year ago. A third conference on the milk question was convened by the Society of Arts on April 25th last and was presided over by Mr. F. B. Acland. It is probably too soon to expect any information as to how the new regulations for pasteurisation are working, but we may venture to hope that before another milk conference is convened, the team of experts suggested by Prof. Kenwood will have something to report.

MEDICINE AND THE LAW.

Criminal Acts and Mental Deficiency.

Two cases recently tried at the Central Criminal Court appear to have had some common features but different results, which should be of interest to those who desire to see the mental condition of persons committing criminal acts carefully weighed in estimating the treatment, punitive or otherwise, to be meted out to them. Cuthbert Rice, 26 years of age, the son of a clergyman, was charged with unlawfully attempting to forge a public document, the *London Gazette* of April 4th, 1923, with intent to deceive. Having served in the army he had afterwards gone to Cambridge and had been convicted at Quarter Sessions and sent to prison for stealing from the rooms of undergraduates. He then seems to have conceived the idea that he could reinstate himself in the eyes of his relatives and friends by getting printed, in a spurious page, purporting to be from the *Gazette*, statements with regard to military honours and awards accorded to him. This obviously would be a course which could hardly escape detection. Dr. Henry Head gave evidence that Price was not certifiably insane, but that he was, in his opinion, a person of "feeble will and doubting purpose liable to fits of depression," who could best be dealt with under medical care in such an institution as Camberwell House. Dr. W. N. East, medical officer of Brixton Prison, concurred in these views, and Judge Atherley Jones, who accepted them, bound the accused over to come up for judgment if called upon, with the object that he might be treated at Camberwell House. In doing so Judge Atherley Jones said that the law only enabled the court to order the detention of persons as mentally defective who had shown such deficiency from birth, or at an early age.

In another court the Recorder had before him recently the case of Doreen Taylor, 20 years of age, said to have been a domestic servant, who had committed perjury in connexion with the arrest of two young men, having witnessed the occurrence in the street. Her evidence, which involved grave charges against the police, was designed to secure their release, and was clearly of a nature to cause investigation. She had also described herself as a waitress, giving her alleged address, and the untruth proved easy to bring home to her. Dr. J. H. Morton, of Holloway Prison, said that she had threatened to commit suicide, and was in his opinion mentally deficient but not certifiable. She had committed thefts of suit cases and other articles, of which she was also convicted. Sir Ernest Wild, in sentencing her to imprisonment amounting to nine months with hard labour, told Taylor that her career had been deplorable and that the only thing to teach her was "a hard, sharp sentence."

There appears to be some inconsistency between the treatment accorded to Rice and the "hard, sharp sentence" which is to teach Taylor to do better, whatever the differences may be in their mental condition and other circumstances. No doubt the former had relatives who could take charge of him, and the latter had not, but that hardly seems to relieve the State from a duty to provide in such cases as hers something more likely to prove beneficial than prison and hard labour.

An Indecent Exhibition Closed.

Sir Chartres Biron commented in scathing terms upon the conduct of Laurent Wynant, a Belgian, and Victor Luxemburg, a Pole by birth and a British subject by naturalisation, summoned recently at Bow-street police-court for being concerned in exposing in Charing Cross-road an indecent exhibition consisting of wax models of human bodies and of parts of them, and anatomical specimens preserved in alcohol. Sir Chartres Biron expressed himself as having been doubtful on two points only: whether he should order certain exhibits to be destroyed, and whether, having regard to the employment of a girl, 15 years of age, to sell catalogues inside the exhibition, he ought not to send both defendants to prison. Wynant had informed the authorities of the kind of exhibition he was opening, which might tend to indicate his good faith; Luxemburg, who had been said by his counsel to be a member of the London Chamber of Commerce as well as a person proud of his new nationality, had shown his commercial instinct by letting the premises, of which he was the landlord, to Wynant, the owner of the exhibition, for a rental of £50 a month, or 28 per cent. of the takings, whichever was the greater, with a stipulation that he was to have immediate possession if the police interfered. "Such," said the magistrate, "is the business instinct of this patriotic Britisher, and in those circumstances I have not the slightest hesitation in convicting him as a rogue and a vagabond." The summons for an order to destroy the exhibits was adjourned sine die on the understanding that they would be taken out of the country, and both defendants were fined the full penalty of £25, and ordered to pay £10 10*s*. costs.

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[1] THE LANCET, August 18th, 1923, p. 317.

A case closely parallel occurred in London in 1903,[1] when Desirée Spitzner and Leon Dekaesmaker had their case adjourned at the Central Criminal Court to give them an opportunity to remove out of the country the contents of "Madame Spitzner's Great Museum," which, like the one referred to above, cloaked under an exhibition of anatomical models in wax what THE LANCET described as "a catch-penny appeal to the prurient." Chief Justice Cockburn, in 1868, gave a definition of "obscenity" which still holds good, when he said, "The test of obscenity is this—whether the tendency of the matter charged as obscenity is to deprave and corrupt those whose minds are open to such immoral influences and into whose hands a publication of this kind may fall."

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Dissolution of the Dublin Board of Guardians.

THE Ministry of Local Government, after a protracted inquiry by one of their inspectors into the working of the Dublin board of guardians, recommended the replacement of the board by a paid commissioner. In the letter from the Ministry to the board announcing this decision, the Minister notes that although the board consisted of 72 members, its work was mainly carried out by some 25, and the sporadic attendance of the negligent members nullified the efforts of those who were devoted to their duties. The inspector, in his report, commented adversely on the condition of the dispensaries belonging to the board. They were both dirty and cold. In one instance the inspector had failed to find either doctor or porter on the premises during dispensary hours. In all cases the inspector found measure glasses in a dirty state. Medicine seemed to be thrown about in an untidy manner; in many cases poison presses were not locked. There was also neglect in dealing with boarded-out children, and with children at nurse under the Children Act. Evidence showed that an actual system of child-farming had been indulged in. A case where six babies died in two weeks painfully illustrated this. The unregistered nursing home was an equally grave danger. There would appear to be serious need of legislation under which nursing homes, private or otherwise, would be compelled to register before accepting the care of any child. In the administration of the workhouse and its hospitals neither the master, the matron, nor the doctors could exercise an adequate control. The doctors were powerless to enforce discipline, and complaints received such scant attention that it was only in very exceptional circumstances that the board was troubled with them. The guardians had not exercised proper management in connexion with hospitals, dispensaries, outdoor relief (particularly in rural areas), stores, staffs, appointments, discipline, admissions, and discharges. The inspector sums up his views on the work of the guardians in saying that the affairs of the union were not managed, but merely transacted.

In dealing so drastically with the board of guardians under its jurisdiction the Ministry probably intends its action to stand as a serious warning that negligence or inefficiency by boards of guardians will no longer be tolerated.

Vaccination in Ireland.

The Free State Government is wisely alive to the danger of importing small-pox from England, and is taking steps to safeguard the health of the country. In answer to a question in the Dail last week, the Minister for Local Government stated that, owing to prevalence of disease in England, medical officers of the ports had been warned, whilst the vaccination authorities in the Saorstat had been advised of the danger. In one or two districts the number of defaulters was high, but the matter was being carefully watched. If the local authorities failed to take adequate measures to ensure the safety of the public, steps would be taken to compel them to do so.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Unsettled Conditions in the Medical Profession.

AT present the members of the medical profession are suffering from the effects of serious unrest caused by internal and external factors. As has been mentioned in a previous letter (THE LANCET, June 23rd), a serious split occurred in the "Economic Organisation of Doctors." The hospital medical staffs endeavoured to construct an organised corporation of their own, the aims of which would not infrequently have clashed with the aims of the older corporation. At the present time, when combination of forces and uniform action are essential, such disruption is bound to spell ruin for both parties. Partly under the influence of this reflection, partly from purely economic considerations, numerous hospital doctors have returned to the mother organisation, and there is reason to expect in due season a re-union of the two sections. Another source of disquiet has arisen in the profession through a decision of the Government to extend the scope of the compulsory insurance against illness. All persons receiving salaries or wages are to be entitled to free medical help, without any restrictions as to the absolute amount of their income, the insurance to cover also their families if they pay the premium for them. The profession hitherto has not been asked to give its opinion on this scheme. But although "free choice of doctor"—an old demand of the profession—has been granted, this is only regarded as a slight concession to medical feeling. The Government will have to come to terms with the representatives of the practitioners, otherwise the Bill might become law—but the doctors will not coöperate. Nevertheless, earnest attempts at negotiation will be made by the leaders, as the opportunities for private practice will be cut down almost to nil, if, for example, a manager of a bank, a director of a business concern, or the family of a stock exchange broker may call in an "insurance" doctor.

In the course of preparing the lists of voters for the election of the Medical Council, a survey of all practitioners in this country was ordered by the Board of Health. This was necessary, as since the disruption of the former empire numerous medical men have settled down in Vienna and elsewhere, who are not citizens of the Republic. The number of defaulters was very small, however. The new council will be elected under the New Medical Act, which gives much more discretionary power to this body, and endows it with disciplinary jurisdiction over the doctors in a large number of more or less serious offences against medical ethics. In the face of the progressing pauperisation of the profession one cannot wonder that illness and old age are objects of real terror for the doctor of to-day. Strenuous efforts to obtain insurances against these contingencies on the part of the organisation have hitherto been fruitless. The Central Medical Council nominated a special committee last year to study the problem, and since its suggestions were not practicable, private enterprise has set to work to construct an adequate scheme. The latest proposal deals not only with insurance against illness and old age, but also with insurance for widows and orphans of practitioners. Further, it demands that membership of this medical union be made compulsory by law. The difficulties of the variations and fluctuations of our exchange rate might be overcome by calculating—and paying—fees in a stable exchange rate, preferably on the gold system. Experts are now studying this scheme, which entails the payment of about a pound sterling monthly from each doctor. This expenditure seems, however, to be very heavy for the average income of an Austrian doctor. At all events, the problem is an acute one, and some solution must be found if serious disaster is to be avoided.

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[1] See THE LANCET, Jan. 24th, 1903, p. 275, and March 21st, 1903, p. 816.

Appointment of a New Director of the Chemical Institute.

The Ministry of Education has recently appointed Prof. Fr. Faltis, former head of the Chemical Institute in Graz, to the vacant directorship of the Pharmaceutical Chemical Institute of the Vienna University. Prof. Faltis is a graduate of Vienna, and before he was called to Graz was for some years at the head of the School of Apothecaries in Vienna. Whilst working there he published some important contributions on the chemistry of alkaloids. His new position will enable him to emphasise to students of medicine the importance of studying the physiological effects of modern pharmacology.

Scarcity of Cadavers for Anatomical Studies.

The Vienna Anatomical Institute is faced with a serious difficulty as the students cannot be given the human material required to obtain a fundamental knowledge of anatomy. In 1921–22, the Institute received 78 whole bodies and 79 dissected cadavers of infants. In 1922–23, the supply had dropped to a total of 31 bodies, whilst this year only one single corpse has been available, and there are over 1000 students who expect to do dissecting work at the Institute. Two years ago the scarcity was very marked, as no more than two corpses could be handed over to a dissecting group of six men per half-year term, against four or five corpses 10 to 15 years ago. At present not even one body is available for such a group, and when the last one of the bodies preserved in the cellars of the Institute has been dissected, the directors will be obliged either to close the Institute entirely or to cut down the work drastically. The reason for this scarcity can be explained only in part by the diminution of the number of patients in the hospitals owing to the reduced size of the State. The chief reason is the formation of a society which undertakes the burial of unclaimed bodies in the hospital mortuaries. Formerly, the corpses were handed over to the anatomical theatres and then buried after dissection. In vain the dean of the faculty and the heads of the anatomical institutes have pressed the matter with the Ministry of Education. There are very high ecclesiastic influences directed against the dissection of human bodies. Such influences are stronger than one would expect and counteract all endeavours by the faculty to adjust matters. At present negotiations between the dissecting departments of hospitals and the anatomical institutes are on foot to arrange an exchange of material, but this is at best only a temporary adjustment of a condition which must be cleared up by legislation, if Vienna is to retain her position in the medical world.

Marked Decrease in Venereal Disease.

A report of the Board of Health dealing with the effect of prophylactic measures states that the morbidity from venereal disease, especially gonorrhœa, is rapidly diminishing in Vienna. Striking figures are given by the out-patient departments of hospitals, and from the dispensaries instituted by the Krankenkassen (sickness insurance clubs) of the workmen. Whilst in 1918 more than 30 per cent. of the patients of the dermatological departments both of hospitals and clubs complained of sexual diseases, in the first half of 1923 the percentage went down to 5 and under, the total number of patients remaining about the same. This means, in other words, a decrease of over 80 per cent. in the incidence of venereal disease. Also in private practice we find similar conditions. Whilst three to five years ago the waiting-rooms of venereal specialists were thronged with members of our "best" society, now no more than 5 per cent. of better-class patients suffer from lues or gonorrhœa, a fact which is clearly reflected in the precarious financial position of many dermatologists of repute. The chief credit of this welcome improvement in public health is due to the efforts of Prof. Finger and Prof. Tandler. To combat the former alarming spread of venereal disease Prof. Finger suggested the institution of a large number of free dispensaries on the one hand and public instruction on the other. Prof. Tandler, during his tenure of office as Minister of Health, carried out these proposals, and with much energy organised in every Vienna district, as well as in every large municipality or industrial centre, an "ambulatorium" (dispensary) where qualified specialists gave free medical help to all persons applying for treatment. No questions were asked, no fee required, and the hours of attendance were after working hours (5–8), so that no loss of valuable time was entailed by the patient—a point of consideration often neglected in hospitals. The leading idea was prophylaxis against disease, and immediate treatment in case of disease. By widespread public enlightenment—lantern lectures, instructive leaflets, teaching of pupils in higher schools—the public have learned to regard venereal disease not as a thing to be ashamed of, but as a condition requiring proper treatment, just as any other infection. The 21 evening dispensaries in Vienna have now, by their own work, rendered themselves almost superfluous. Seven have been closed, and it is hoped that shortly the ordinary institutes—viz., clinics and hospital departments—will be sufficient to deal with the existing cases.

BUCHAREST.

(From our own Correspondent.)

Pre-Matriculation Examinations in the Universities.

The Minister of Public Instruction, Mr. Anghelesen, has instituted a new measure in the universities of Roumania. The universities must now themselves examine students before allowing them to matriculate. This regulation has caused much dissatisfaction among the students who passed their school-leaving examinations only a few months ago. As yet the university examining board has not been too severe, judging from the fact that, for instance, in Cluj only a few out of 90 applicants were rejected. The board lays the chief stress on the general knowledge and intelligence of the students. The subjects of examination are: Roumanian language and literature, history, geography, and constitution; in the medical faculty anatomy and physiology are added. It is a general principle that only such students are matriculated as are able to understand the lectures in the Roumanian language. The professors, however, appreciate that almost all applicants claim Hungarian as their mother tongue, and allow them to answer in Hungarian, if they cannot express themselves in Roumanian. It is an undeniable fact, however, that this new system, which is unique in Europe, has considerably decreased the number of first-year students in the Roumanian universities. Foreign applicants with maturity certificates of foreign schools are exempt from the admission examination, lest foreign universities should reciprocate by applying the same measure against Roumanian students. As a consequence of this new measure numerous Hungarian and Saxon students (there are very many Saxons in Transylvania) have matriculated in foreign universities. Even Roumanian students have gone to Italian and French universities to evade the admission examination. It is remarkable that in the medical faculty of the Cluj University out of 82 first-year students there are altogether only three Christian Hungarians and four Jewish Hungarians, although the majority of population in and around Cluj consists of Hungarians. This can be attributed to the frequent demonstrations against the Jewish and Hungarian students in the course of the last year, when, following serious disturbances, the university had to be closed for a whole session.

Excessive Taxation of Medical Men.

Bitter feeling has been aroused among the doctors of Roumania through excessive taxation. Under the recent law relating to the standing of professional men, lawyers and doctors have been placed in the same category as retail merchants, and a tax of 16 per cent. has been levied on all professional income. The income of the physician is fixed by a committee consisting of four representatives of the financial authorities together with one medical man. The voice of the profession is thus easily overborne, and taxes are imposed which simply spell ruin to the rank and file of the doctors. The injustice of this burden is all the greater as the basis of income on which the 16 per cent. tax is paid is calculated on the physician's total earnings during the past year, and no allowance is made for expenses such as rent, household, carriages, instruments, journals, &c., as was done in former years. The various medical associations of the country have united in a movement to demonstrate against this crushing imposition, and the Government has been threatened that, unless the taxes are reduced, all private doctors of the country will cease to give gratuitous medical service to the poor. Up to the present there has been no reduction in the income-tax, but a new tax has been devised, called the "Sign-Board Tax," by which a levy is made on every professional sign or name-plate. Doctors in the outlying districts are heavily penalised in that name-plates in any other language than Roumanian are taxed 60 or 80 fold. And considering that in Transylvania, Bukovina, and Bessarabia there are about 2500 doctors with an entirely non-Roumanian speaking clientèle, it is easily understood that this order has caused great dissatisfaction. For instance, in Arad, a flourishing industrial and commercial town in Transylvania, the tax upon a name-plate or sign bearing Hungarian words amounts to 8000 lei, which is equivalent to the doctor's total fees for more than 100 visits. Thus a young practitioner, newly settled, who puts up his plate stating his consultation hours, &c., in the language of the people on whom he is dependent for a livelihood, finds his returns for at least two months in a year swallowed up by this tax. Also he is fortunate if he is paid for 100 visits in two months. A deputation was sent to the Minister of Finance to urge that the language of the universities be not regarded as "foreign." Some optimists hope that the Minister may adhere to the statutes of the Versailles Peace Treaty, which provides for the unrestricted use of their mother tongue by all sections of the nation.

Doctors and the Telephone.

The Roumanian telephone authorities have two separate scales of charges for subscribers, 3000 and 1000 leis (nominally £120 and £40) respectively. The former charge is made to business men, lawyers, and physicians, while the latter applies to private persons. The medical faculty of Roumania has protested several times at this classification of the profession along with tradespeople, and has emphasised the benefits which accrue to the public through the doctor's telephone. All protests, however, have been in vain, and the Minister refused the appeal of a large medical deputation which requested the reduction of telephone charges. As a sequel, the medical men of Bucharest resolved to make a "telephone strike," so that on Nov. 10th no doctor responded to any call over the telephone. The general public fully appreciates the position of the doctors, and cannot understand why a physician should pay as much as a wholesale merchant or a bank, when a capitalist living on the dividends of his capital may have a telephone for a third of the sum the doctor has to pay. Although the "strike" made a deep impression on the authorities, as yet no reduction in the telephone charges has taken place.

Correspondence.

"Audi alteram partem."

CENTENARY OF THE LANCET.

To the Editor of THE LANCET.

SIR,—I have pleasure in informing you that the Council of the London and Counties Medical Protection Society, Limited, at its meeting on Nov. 21st, on the proposal of our President, Sir John Rose Bradford, seconded by our Chairman of Council, Dr. C. M. Fegen, unanimously passed the following resolution:—

> "The Council of the London and Counties Medical Protection Society, Limited, heartily congratulates THE LANCET on the completion of its hundredth year, and takes this opportunity of expressing its appreciation of the high literary character of THE LANCET, and of the vigour with which it upholds the best traditions and protects the true interests of the medical profession."

I am, Sir, yours faithfully,
HUGH WOODS,
General Secretary.
Nov. 22nd, 1923.

EPIDEMIC DIAPHRAGMATIC PARALYSIS.

To the Editor of THE LANCET.

SIR,—Much interest attaches to the recent outbreaks of disease in the United States, of which one is referred to in THE LANCET of Nov. 17th. Various names, including that of "devil's grip," appear to have been bestowed upon this "new disease," but that of "epidemic diaphragmatic paralysis" seems to have found most favour, on the *lucus a non lucendo* principle, since the clinical condition is recognised as one of diaphragmatic spasm. It seems pretty clear that the outbreaks form an epidemiological link between influenza of the dengue type (with a bileptic temperature curve) and epidemic hiccough, which, as is now generally recognised, "runs into" epidemic encephalitis and myelitis. As a matter of fact, in America, the new disease has already been identified with the Virginian epidemics,[1] at the time thought to be dengue, but lately regarded as amongst the epidemiological prodroma of the great pandemic of 1889–90.[2]

Dr. H. W. Leatham's lucid account, in your issue of last week (p. 1163), of an outbreak of similar nature is then of peculiar interest. At the Prince of Wales's General Hospital last month I saw two cases of the same type, and the confident opinion was then expressed that we should shortly have accounts from rural districts of such outbreaks as that now described by Dr. Leatham. At the time that the two cases I speak of were seen, there were, in the same wards, a case of "heliotrope pneumonia," a case of severe gastro-intestinal influenza followed by jaundice, and several cases of diverse nervous types. More recently a woman has been seen with lethargy, with double ptosis, with hand and foot pains and hæmorrhagic blebs of the "acrodynia" type who, at the post-mortem examination, displayed an acute hæmorrhagic encephalitis. Her illness commenced with "influenza" and broncho-pneumonia. Now, when one observer in a large town or city sees, almost simultaneously, single or sparse cases of these different types, and we begin to have reports from rural districts of outbreaks conforming to one or other of these types, it is difficult not to think and speak of epidemic influenza. Our interest is quickened when, as now, we read of cattle disease spreading here and there, and we remember that, for six or nine months past, reports have arrived, if not from throughout the world from China to Peru, at any rate from Bombay to Brazil, of strange and new epidemics, somewhere thought to be dengue, somewhere thought to be influenza, but everywhere "baffling the doctors" who generally agree that it is indeed a "new disease." It was thus in 1888, and it was thus in 1917 and 1918.

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[1] Brit. Med. Jour., 1888, ii., 1176.

[2] Cf. F. G. Crookshank, Influenza, p. 460.

It will be interesting to see what is now going to happen. It may be that we should expect such a revival of influenza as has not happened since 1919, but as did happen five or six years after the pandemic of 1889–90. It may be, on the other hand, that we are in for such a 20 or 30 years of influenza, its congeners and allies, as followed the pandemic of 1831. During great part of that time, in Creighton's words, the influenza years came "thick and fast." Again, it may be that nothing in particular is going to happen.

What, however, does seem desirable is, that frequent reports such as that of Dr. Leatham should be made by those who enjoy his opportunities—for it is in rural districts that *outbreaks* are best studied. In towns grouped cases are often missed, for the like individuals are often seen by different doctors, who do not recognise the epidemiological matrix, as it were, in which maladies, apparently so diverse as a pneumonia, a jaundice, an encephalitis, a gastroenteritis, or a tonsillitis are embedded. At any rate, we can try to form some general idea of what is foreshadowed by the "certain liveliness" now in evidence in the epidemiological field.

I am, Sir, yours faithfully,
F. G. CROOKSHANK.

Wimpole-street, W., Nov. 26th, 1923.

THE ALBUMINURIA OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—I am afraid Dr. J. W. Russell (THE LANCET, Nov. 17th, p. 1110) has misinterpreted the meaning of my letter (Nov. 10th, p. 1057). So far from contending "that the albuminuria of pregnancy is not likely to be explained on mechanical grounds to any great extent," my contention is that this condition is not likely to be explained on any other ground. Prof. F. Cook showed (Nov. 3rd, p. 1008) that the albuminuria of pregnancy may be at times of unirenal origin, when perhaps it is due to obstruction of the left renal vein. My point was that since this albuminuria is more often bilateral, and obstruction of the right renal vein cannot be so well advanced as that of the left as a cause, we are led to consider obstruction of the *renal capillaries* by *physical causes* as an explanation. Dr. Russell, perhaps, will admit that if obstruction of the renal vein causes albuminuria, obstruction of the renal capillaries—e.g., by a compression of the whole organ—may also do so. We have, indeed, proof that this is so. Thus, if the ureter be clamped and after a while released, albumin is present in the urine secreted. (In this and the following examples the capsule of the kidney acts as container.) In hydronephrosis the urine from the affected kidney contains albumin. Clamping the ureter, as Ludwig (1864) showed, causes a diminution in the flow of blood from the corresponding renal vein. The distension of the uriniferous tubules thus hinders the blood-flow through the renal capillaries. The diminution is so great that if the condition persists atrophy of the renal substance occurs. This cannot be explained by the distending pelvis of the kidney obstructing the renal vein.

It is generally held, I believe, that the albuminuria of pregnancy is due to a toxin. If this be so, it must be admitted as remarkable that the albuminuria of pregnancy, as Prof. Cook states, is "usually unaccompanied by any other deviation from the normal with the possible exception of œdema"—either "clinical" or "biochemical." Certainly, many pregnant women with albuminuria appear, and say they feel, in excellent health—as we know, the albumin is often only discovered by routine examination of the urine. Nor is this conception in line with the known fact that albumin often appears for the first time during labour; we cannot believe a specific poison, for the first time in the pregnancy, is let loose during or by this act. Similarly, the disappearance of the albumin by putting a pregnant albuminuric to bed, dieting and purging her, does not support this conception. It is, indeed, supposed that by such measures a toxin is eliminated and that thus the albuminuria is cured; but this is not the only or the more reasonable explanation. Unfortunately, it is not yet grasped that the physical forces of the body are reduced by such measures, and that circulatory changes of importance in organs by these means alone are determined. Muscular activity—e.g., tonus—(on which the blood pressure and other body pressures depend) is not the same on a starvation as on a full diet, or when resting as when working; how, then, as long as such forces are omitted from consideration, can we come at the truth? If such argument is applicable to the albuminuria of pregnancy it is, I submit, applicable to the albuminuria of other types—especially to those imputed to be physiological. Dr. Russell believes that many cases of albuminuria (of postural and other origin) will be shown to have a "renal pathology." The regret is that the teaching of that great natural experiment—pregnancy—has not as yet shed its light on internal medicine.

I am, Sir, yours faithfully,
R. H. PARAMORE, F.R.C.S. Eng.

Brook-street, W., Nov. 17th, 1923.

$*_*$* Mr. Paramore's letter was referred to Dr. Russell, who replies: "My apologies are due to Mr. Paramore. I was thinking entirely of 'unirenal' albuminuria, and should have used that adjective instead of 'mechanical.' But my slip has elicited a very interesting letter, and may therefore be the less regretted."—ED. L.

THE IMPORTANCE OF NASAL SINUS INFECTIONS.

To the Editor of THE LANCET.

SIR,—In reference to the two valuable papers recently published in THE LANCET on unrecognised maxillary sinus disease, the two following cases are worth record. In neither case had the presence of sinus empyema been suspected. Both show the paramount necessity for complete examination.

1. A man, aged 51, was sent to me for persistent pharyngitis. He had also a general septic rash, suffered from dyspepsia with occasional nausea and retching on waking in the morning, and complained of not having "felt himself" for some months. The breath was very offensive. He had undergone operation, under local anaesthesia, for nasal polypi (?) 11 months before consulting me. Anterior rhinoscopy showed a considerable turgescence of the left middle turbinal, and the electric nasopharyngoscope revealed enlargement of the posterior ends of the left middle and both inferior turbinals. There was no pus in the nasal chambers, nor did any appear with the head in the drainage position. There was marked pharyngitis, especially in the left lateral recess. There was some septic bridge-work on the left upper alveolus. Transillumination showed complete absence of the crescent on the left, and an X ray photograph proved both frontal sinuses to be clear, while the left antrum was obscured by a strong shadow. The left nasal wall of the antrum was punctured under general anæsthesia and the sinus washed out. The muco-pus it contained was extremely thick and stinking. The opening was enlarged by the removal of the nasal antral wall in its whole length. Recovery was uneventful, and two months after the operation the patient reported himself as "quite recovered."

2. A woman, aged 57, consulted me for recurrent aching in the right ear, and pain (without tenderness) in the course of the Eustachian tube. The symptom had been present, on and off, for about five months. Nothing abnormal could be

detected in either ear, either upon inspection or by functional tests. Beyond the admission of a feeling of general ill-being no other symptoms could be elicited. The upper teeth had been removed some years earlier and the patient was wearing a complete upper case. On examination of the nose there was a marked turgescence of the right middle turbinal. No pus was seen and none appeared after placing the head in the draining position. Transillumination showed a clear crescent on the left side, complete absence on the right. The antrum was washed out through a puncture in the nasal wall and recovery was rapid. There was a moderate quantity of fairly thick muco-pus. The ear pain appears to have been relieved immediately the tension in the antrum ceased.

In both cases no pus could be found in the nasal passages, nor was there any headache, although that symptom was specially inquired for.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY, F.R.C.S. Eng.,
Consulting Aural Surgeon to the London County Council and the St. James's Hospital, Balham, &c.

Welbeck-street, W., Nov. 20th, 1923.

NASAL SINUSITIS IN PHTHISIS.

To the Editor of THE LANCET.

SIR,—I agree with Dr. P. Watson-Williams that the wording of my remarks on the occurrence and production of laryngeal signs is too loose unless these remarks be regarded, not as a general statement of the question applicable to all forms of sinusitis, but as applying solely to sinusitis which simulates pulmonary tuberculosis. Dr. Watson-Williams thinks I attach too much value to the presence of pus and invites my attention to the more exact methods of investigating the sinuses by examining their contents microscopically. I frequently use the apparatus that he designed for this purpose and have found it most valuable. It opens up a field of research on the question of where the normal reaction of the mucous membrane to organisms extracted from the inspired air, and spreading from continuity of the mucous membrane to the sinuses, may be said to end and where sinusitis may be said to begin. It is most serviceable in conditions which may be described as sinus infection of a chronic nature, rather than sinusitis in which the organisms become symbiotic and produce toxic absorption leading to arthritis, without producing changes which can be recognised clinically as sinusitis. I do not think, however, that such conditions of the sinuses as are detectable only by microscopical examination can produce changes of such a nature that the secretion of muco-pus is sufficient to form a sputum and lead to simulation of pulmonary tuberculosis, though I agree that in some cases the pus mixes with watery solutions, if these are employed for irrigation, for which reason I now employ liquid paraffin.

Dr. Watson-Williams takes exception to my statement that frontal and ethmoidal sinusitis do not complicate the diagnosis of pulmonary tuberculosis and that sinusitis affecting the sphenoid has not been met with except in the presence of other sinusitis, and I agree that this statement is too wide in application if cases detectable only by microscopical methods are included. All that I am entitled to say is that out of over 200 examinations of the sinuses in patients with sinusitis in whom pulmonary tuberculosis had been diagnosed but in whom the diagnosis was in doubt, the sinusitis affected the maxillary and less commonly the maxillary and posterior ethmoidal and sphenoidal sinuses, and that where frontal sinusitis was present the patient complained of pain, the significance of which had been recognised by the physician examining the case. I do not think that sinusitis with secretion of muco-pus will be found to affect the anterior ethmoidal group unless there is at the same time some degree of maxillary sinusitis.

Dr. W. C. Rivers's letter in THE LANCET of Nov. 17th commenting upon my paper suggests differences of opinion on this question, which, from a perusal of his book to which he refers me, appear to be more apparent than real. He quotes Dr. Dan McKenzie as attributing purulent ethmoiditis to 10 out of 102 consumptives, but omits to quote the remainder of the same paragraph in his book (p. 142), in which he states that Skillern found secretion or pus in the washings of the antrum in 11 out of 100 tuberculous individuals. On p. 128 of the same book Dr. Rivers writes: The strong affinities of the nasal atrophy of consumptives to ozæna count against Moure's conception of it as a special rhinopathological condition of itself peculiar to *tuberculous* patients," which contradicts the statement of this author's views in his letter. Again, in his letter Dr. Rivers deprecates any packing of nasal sinuses in consumptives with antiseptics, whereas in his book (p. 132) he states that it is his practice in ozæna (in consumptives) to pack the nose with double cyanide ribbon gauze. I could give other instances, but I think I have said enough to show that the points of disagreement are only apparent. If during the course of the six years since the publication of his very carefully written book, Dr. Rivers has made observations that have caused him to alter the views there expressed, as his letter would suggest, I should be glad to learn of them.

I am, Sir, yours faithfully,

Birmingham, Nov. 22nd, 1923. A. LOWNDES YATES.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. F. C. B. Gittings is placed on Ret. List with the rank of Surg. Capt.

Surg. Lieut. F. L. H. MacDowel to be Surg. Lieut.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Maj. G. W. Heron (secd. Foreign Office) retires, receiving a gratuity, and is granted the rank of Col.

K. Fletcher-Barrett to be Lt. (on prob.) and to be secd.

Temp. Capts. relinquishing their commns. and retaining the rank of Capt.: E. O. Gilkes and J. McGrath.

REGULAR RESERVE OF OFFICERS.

R.U. Rif.—Lt. J. M. Semple, late R.A.M.C., to be Lt.

TERRITORIAL ARMY.

Maj. P. Moxey, from General List, to be Lt.-Col.

ROYAL AIR FORCE.

J. E. Cox is granted a temporary commission as a Flight Lt.

CATHERINE GLADSTONE HOME.—This annexe to the London Hospital was officially opened at Mitcham, Surrey, on Nov. 19th, by Sir William Joynson-Hicks. The home, which is most comfortably furnished, in delightful surroundings, contains some 50 beds for women and children convalescents. Mr. William H. Baker, chairman of the Marie Celeste Samaritan Society of the London Hospital, described the gift of the Catherine Gladstone Home as a fitting climax to the long-standing interest of the Gladstone family in the hospital, which dated back to the cholera epidemic in 1866. Mrs. Gladstone, during the epidemic, was so touched by the plight of the children who were orphaned that she opened a home for them at Woodford, which was later removed to Mitcham. After her death the home was administered by trustees, who, a year ago, suggested that it should be handed over, with its endowments of about £1200 a year, to the London Hospital. As the House Committee could not meet the cost of upkeep the Samaritan Society came forward with a generous offer of help, and extensive alterations were made to meet modern requirements. Altogether about £8000 has been spent on equipment. In referring to the need the home would meet in hospital work, Sir W. Joynson-Hicks said that in the London Hospital a patient might have a better chance of recovery than in many nursing homes. In every great hospital the scientific side was coming to the front, and the great central hospital became more and more the place for diagnosis. The annexes would be the places where the cures were carried out, thus relieving the list of people waiting for admission. A bed cost £5 5*s.* a week in the London Hospital, and at Mitcham it only cost £2 a week. He saw in the future the London Hospital becoming a department for accidents and diagnosis, and the main work of healing conducted on the outskirts of London.

THE GENERAL MEDICAL COUNCIL.

The winter session of the General Medical Council was opened on Nov. 27th, Sir Donald MacAlister presiding.

President's Address.

The President began by regretting the untimely death of the assistant secretary, Mr. A. J. Cockington, who for 35 years was a member of the office staff. "None was more loyal and devoted," said the President. "His knowledge of our proceedings was encyclopædic in its range and accuracy. In my experience, and I believe in that of many other members and officers of the Council, though his knowledge was never obtruded, it was never found wanting when need arose. During the absence of Colonel King on active service, Mr. Cockington, as deputy registrar, carried on his shoulders the heavy administrative burden that the Council's multifarious war work entailed. He spared neither time nor labour in the effort to carry it through successfully, but I fear that his success was gained at the cost of permanent damage to his health."

Tributes to the Dead.

The President then recalled to memory two former members of the Council who had both recently passed away. Mr. Thomas Pridgin Teale and Dr. David White Finlay. The first, whose father was one of the original members appointed by the Crown in 1858, himself served as a Crown member for 24 years, from 1876 to 1901. "As a surgeon, sanitarian, teacher, and man of science," said the President, "his was a venerated name. Dr. David White Finlay, who was at one time inspector of medical examinations, was a member of the Council from 1901 until 1911. He won," said the President, "a high reputation as a physician, and a teacher of physicians, both in London and in Aberdeen. After retiring 12 years ago from the Regius chair in the latter university, he returned to the Clyde which he loved, but notwithstanding his advanced age, he served as commandant of a Red Cross hospital in Glasgow during the war with characteristic thoroughness and efficiency."

Medical Education in India.

Sir Donald MacAlister continued: The Executive Committee, thanks to the good offices of Sir Norman Walker, had the privilege yesterday of meeting Lieut.-Colonel Needham, who has been appointed by the Indian Government and approved by the Council as the official inspector of the Indian universities and Colleges of medicine, and of discussing with him the many important questions that have arisen regarding the conditions of recognition, for the purposes of the British Register, of Indian medical degrees. The Government has placed him on special duty in order that he may attend the meetings of the Executive Committee at this session, and discuss these questions with us in person. The Council will, I know, be glad to welcome him here, on account of the distinguished position he holds in the Indian Medical Service and of the responsible functions he has undertaken for the benefit of medical education in India. I trust that during the week he may obtain all such information concerning the Council's methods and procedure as he desires in furtherance of his efforts to coördinate our standards in all the essential branches of professional training for registrable qualifications with the standards hitherto current in the Indian universities and colleges. We in our turn will profit by learning from him what improvements in their educational arrangements have been already made or are desiderated by these important bodies, in order that the whole course of study and examinations for the degrees they desire to be registrable in this country may continue to justify our official recognition. The reports presented to the Executive Committee, and published with the minutes of last June, show that in regard to certain essential features of their course the universities themselves are fully aware that improvements are necessary, even apart from the consideration of external recognition I need mention, as examples, only such matters as the excessive number of students admitted to the medical colleges of certain of the universities; the limitation, to two years, of hospital study after the examination in anatomy and physiology; and the inadequate facilities for practical training in midwifery. The Council will readily acknowledge the desire which has been manifested by the several Indian universities to remedy such deficiencies, notwithstanding difficulties due to local conditions and local organisation; but it must urge strongly the necessity of prompt and effective action on the part of these authorities, if their laudable desire is to be fulfilled within a reasonable time.

If the question were simply one of a suitable professional training for practitioners, *practising in India* under Indian conditions, the Indian Universities, Colleges, and Schools, with their special knowledge of local requirements, would naturally be the best and indeed the only judges. From this point of view India is autonomous, and the Council has neither the wish not the power to intervene. But when the Council is called on to recognise an Indian qualification for registration *in this country*, it is bound by Act of Parliament to inquire into the conditions under which any such qualification is granted. It is bound to require that the qualification shall furnish a sufficient guarantee of the knowledge and skill, in medicine, in surgery, and in midwifery, requisite for efficient practice, not in India alone, but in the United Kingdom, and in the other parts of the world with which this country has established reciprocity of practice. If it is found, in respect of any particular degree, that the guarantee is no longer sufficient, the Council would be in default of its statutory duty, and so be liable to supersession by the Privy Council, were it to continue to recognise such a degree as registrable and therefore valid outside of India.

It is on this ground only that the Council is by law entrusted with a specific responsibility as regards qualifications granted elsewhere than in the United Kingdom. It is on this ground only that it has requested from the Indian Government the special facilities for inquiry and inspection which have been placed at its disposal, and which have been so ably and sympathetically utilised, in the best interest of Indian medicine, by Lieut.-Colonel Needham. We have to await his further reports—reports, as we hope, of very substantial progress—before deciding at the next session what further steps we shall take regarding some of the qualifications granted in India.

Status of Practitioners Abroad.

The Executive Committee is continuing its negotiations with the Provincial medical authorities in Canada, with a view to formulating a uniform and comprehensive statement of the conditions on which recognition shall in future be accorded to diplomas and degrees registrable in the Dominion. A considerable measure of agreement has been reached, and the Committee expects that by next session outstanding difficulties will be removed and a satisfactory arrangement will be completed.

Communications have also been received and answered, through the Privy Council and the Foreign Office, concerning the status of British practitioners in Italy, Greece, and Turkey. There is reason to believe that the answers have been found useful.

Relation to Midwives.

We have received from the Ministry of Health a copy of an important decision of the High Court on a case in which an uncertified woman was charged with a breach of the Midwives Act, 1902. It was alleged on her behalf that she had not attended women in childbirth otherwise than "under the direction of a qualified medical practitioner," and so was not guilty of infringing the Act. Several practitioners testified that though they had not attended the women before confinement, had given no instructions to the uncertified person, and had not been present at the birth, they had attended the patients subsequently, and that thus the uncertified person had acted under their "direction." The Court ruled that in such cases there must be "a real and not a mere nominal direction." This decision will strengthen the hands of the Council in dealing with cases in which practitioners are alleged to have disregarded its warning notices on this subject, and of having "knowingly enabled uncertified women, on pretence that such women were under their direction, to attend women in childbirth, contrary to the law." Steps have been taken to make this decision known to practitioners and supervising authorities, who have made inquiries on the subject. It is probable that some amendment of the Act, setting forth in precise terms that the "direction" of the practitioner must be immediate and personal, or, in the words of the judgment, "real and not nominal," will be necessary to prevent the continuance of abuse.

Order of Business.

The inspection of examinations for dental qualifications, which you ordered to be instituted at the last session, is in progress. Reports of two or three such examinations have been received, but it is thought advisable by the Committee in charge that the series should be more complete before the reports are formally brought before you. The Council will thereby be in a better position to form a comparative judgment on methods and standards.

In accordance with precedent, most of your time, at this November session, will be occupied in hearing cases of discipline under Section 29 of the Medical Act, 1858. A number are cases of conviction by the ordinary courts; a few arise from complaints of professional misconduct in contravention of one or other of your warning notices. The Dental Board also will report to you their findings against certain dental practitioners, in pursuance of the Dentists Act, 1921. So far as I am able to gather, none of the disciplinary cases raise general questions of an unfamiliar kind, but the special points of each will, of course, require and receive your careful consideration.

THE PARLIAMENTARY ELECTION:

MEDICAL CANDIDATES.

NOMINATIONS were completed on Nov. 26th and two medical men have been returned unopposed to the House of Commons.

Returned Unopposed.	*Constituency.*	*Party.*
Sir George Berry†	Scottish Universities	Conservative.
Prof. Thomas Sinclair	Queen's University, Belfast	Conservative.

Sir George Berry, along with Sir Henry Craik—a good friend to medicine—sat for the same constituency in the last House of Commons. In his election address he expresses his intention to watch and, as far as possible, promote the special interests of the universities and particularly of the medical profession, independent of party considerations..

Prof. Sinclair, who follows Sir William Whitla in representing Belfast University, occupied the chair of surgery in Queen's College, in succession to the late Dr. Alexander Gordon, for 37 years, retiring at the close of last session. Recently he had acted as registrar and vice-chancellor in the Queen's University. He is a member of the General Medical Council and of the Senate of Northern Ireland, as well as consulting surgeon to the Royal Victoria Hospital, Belfast, the Ulster Hospital for Women and Children, the Forster Green Hospital, and the County Antrim Infirmary. He served with distinction as consulting surgeon during the war, and received the honour of C.B.

At the General Election, which takes place on Dec. 6th, the following medical candidates will seek election. Those who sat in the last Parliament are indicated by a dagger, and those who stood unsuccessfully by an asterisk.

Candidate.	*Constituency.*	*Party.*
Dr. Ethel Bentham*	Islington, East	Labour.
Dr. H. B. Bates*	Lancaster, Newton	Conservative.
Dr. W. A. Chapple†	Dumfries	Liberal.
Dr. R. Dunstan*	Birmingham, Ladywood	Labour.
Capt. W. E. Elliot†	Lanark, Lanark	Conservative.
Dr. F. E. Fremantle†	Hertford, Albans	Conservative.
Dr. O. Gleeson	Portsmouth, North	Labour.
Dr. L. Haden Guest*	Southwark, North	Labour.
Mr. Somerville Hastings*	Reading	Labour.
Dr. G. B. Hillman	Yorks W.R., Normanton	Conservative.
Sir Henry Lunn	Brighton	Liberal.
Dr. J. E. Molson†	Lincoln, Gainsborough	Conservative.
Dr. H. B. Morgan*	Camberwell, North-West	Labour.
Dr. A. G. Newell	Tottenham, South	Liberal.
Dr. R. L. Ridge	Middlesex, Enfield	Liberal.
Sir Sydney Russell-Wells†	London University	Conservative.
Dr. Alfred Salter†	Bermondsey, West	Labour.
Dr. R. W. Simpson*	Newcastle-on-Tyne, North	Liberal.
Dr. E. G. Spero*	Stoke Newington	Liberal.
Dr. Thomas Watts†	Manchester, Withington	Conservative.
Dr. J. H. Williams†	Carmarthen, Llanelly	Labour.
Dr. R. McNair Wilson*	Essex, Saffron Walden	Liberal.

Some Personal Records: New Candidates.

Of the new medical candidates, Olaf Gleeson, M.R.C.S. Eng., who is contesting Portsmouth in the Labour interest, is an old Westminster Hospital student who qualified in 1915, and served as a captain in the R.A.M.C.(T.)—George Brown Hillman, M.B.E., L.M.S.S.A., who is Conservative candidate for the Normanton Division of Yorkshire, qualified in 1892, is honorary captain, R.A.M.C., and medical referee to the Ministry of Pensions. As a member of the West Riding County Council Public Health Committee he has devoted much time to improving the present methods of dealing with tuberculosis and in work connected with child welfare.—Alfred George Newell, M.D. Glasg., D.P.H., qualified in 1894, and has occupied important public health appointments abroad, being at one time professor of hygiene at the Lahore Medical College. During the war he was on the staff of the Royal Waterloo Hospital, and he was chairman last year of the Middlesex Division of the British Medical Association.

Candidates for Re-election.

We have on a previous occasion set out the reasons for which many of these are seeking Parliamentary suffrage. Dr. Ethel Bentham will continue to emphasise the importance of housing in relation to health.—Dr. Dunstan, as a medical practitioner working in a poor district and impressed with the close association between the evils of present-day society and the incidence of disease and death, regards it as useless to try to alleviate disease and suffering without at the same time dealing drastically with the underlying economic cause.—Dr. Fremantle aims at reorganising in one great scheme the measures for insuring people against ill-health, unemployment, and old age, and removing any discouragement to thrift. He hopes to see incorporated in this scheme the long-needed reform of the Poor-law.—Mr. Hastings, who is now standing for Reading, is laying special stress on the social programme, most of all on the needs of the coming generation. He has found evidence that unemployment has resulted in deterioration in the physical condition of the children of the unemployed. He holds the view that a well-fed, well-housed, and well-educated democracy can be safely trusted to look after its own destiny.—Dr. Salter is pledged to deal with unemployment and housing, the two greatest social sores of the moment. He derives his politics from his religion and aims at establishing peace and goodwill on earth.—Sir S. Russell-Wells desires to see modifications in the panel system. He will oppose any attempt to place the doctors under the heel of approved societies or to convert the profession into a sweated industry.

Support.

The Parliamentary Elections Committee of the British Medical Association is supporting the candidature of Sir S. Russell-Wells, Dr. Watts, Dr. Hillman, and Dr. Newell. The Committee has also conveyed its best wishes for success in their candidature to the following: Dr. Chapple, Lieut.-Colonel Fremantle, Captain Elliot, and Major Molson. The Federation of Medical and Allied Services is placing its machinery at the disposal of all the medical candidates who were successful last year as well as that of others who desire it.

Medical News.

University of London.—At a meeting of the Senate held on Nov. 21st Mr. W. E. Le Gros Clark was appointed as from Jan. 1st, 1924, to the newly-instituted Readership in Anatomy tenable at St. Bartholomew's Hospital Medical College. The D.Sc. in Embryology was conferred on Miss Margaret Tribe (University and King's Colleges) for a thesis entitled the Development of the Hepatic Venous System and the Postcaval Vein in the Marsupialia. It was resolved that the Physiological Laboratory Library should be kept together as part of the University Library and be developed in connexion therewith as a memorial to the late Prof. A. D. Waller.

At examinations held recently the following candidates were successful:—

Diploma in Psychological Medicine.

With special knowledge of Psychiatry.—Basil W. Brown, Harold E. Brown, Isabel F. King, Thomas Lindsay, and John Wall.

Small-pox in England and Wales.—During the week ended Nov. 17th 44 cases of small-pox were reported to the following sanitary authorities: Derby 15 (Heanor 2, Ripley 1, Blackwell R.D. 12); Durham 1 (Gateshead); Gloucestershire 11 (Gloucester 6, East Dean 5); Kent 1 (Chatham); Notts 13 (Hucknall 8, Basford R.D. 5); Yorks W.R. 3 (Adwick-le-Street).

Old Epsomian Club.—The annual dinner will take place on Dec. 13th, at 7.30 p.m., at the Trocadero Restaurant, when Mr. W. Æ. Mackay (Carr House, 1886–89) will be in the chair. The price of the dinner will be 10*s.* 6*d.* (exclusive of wine), and will be collected at the table. Members intending to be present are requested to send their names to the hon. sec., S. Maynard Smith, 49, Wimpole-street, W. 1, as soon as possible, giving the names of any members near whom they would like to sit. The annual meeting will be held at the restaurant before the dinner, Dr. H. F. Ealand, the retiring President, taking the chair at 6.30 p.m.

Royal Sanitary Institute.—A conference of veterinary officials will be held at 3 p.m. on Dec. 14th, at 90, Buckingham Palace-road, London, S.W., when Alderman W. Phene Neal (late chairman of Cattle Markets Committee, City of London) will open a discussion on Tuberculosis in Cattle and the Desirability of allowing the introduction of Breeding Heifers from Canada if Certified Free from Tuberculosis. The chair will be taken by Dr. Louis C. Parkes (Chairman of Council).

The next Congress of the Institute will be held at Liverpool from July 14th to 19th, 1924, by invitation of the Lord Mayor and City Council.

Prize for Cancer Research.—The committee of the Christie Hospital is offering a prize of £300 for Cancer Research. Candidates must be qualified in medicine or in science cognate to medicine, and must submit evidence of original research work bearing on cancer done and projected, which shall in the opinion of the assessors qualify him for the prize. The object of the prize is to support research work already in progress. The assessors will take into consideration promising work which might fail for want of financial help. The competition is open to research workers of any nationality. Applications must be sent to the chairman of the Medical Board, Christie Hospital, Manchester, on or before Dec. 31st, 1924.

The late Dr. William Gowans.—Dr. Gowans, a well-known South Shields medical practitioner, honorary surgeon to the Ingham Infirmary, and president of the North of England Branch of the British Medical Association, died from septicæmia following a cut thumb while stropping a razor. Qualifying with the L.R.C.P. and L.R.C.S. Edin. in 1868, Dr. Gowans entered on general practice and obtained the F.R.C.S. Edin in 1883. He graduated M.D. at Durham University in 1886. A vice-president of the Northumberland and Durham Medical Society, he was surgeon to H.M.S. *Wellesley* training ship, and at one time was an honorary surgeon and a commanding officer to the old 3rd Durham Artillery Volunteers. He had been a justice of the peace since 1892.

National Health Insurance: Court of Inquiry. The Court of Inquiry to be appointed by the Minister of Health and the Secretary for Scotland, with reference to the amount of the capitation fee to be paid, as from Jan. 1st, 1924, to practitioners serving under the National Health Insurance Scheme will be composed of as follows: Chairman, Mr. T. R. Hughes, K.C. (Chairman of the General Council of the Bar) with Mr. F. C. Goodenough (Chairman of Barclay's Bank) and Sir Josiah Stamp, K.B.E. The last-named was one of the arbitrators appointed by the Government to deal with the question in 1920. The terms of reference to the Committee will be published later.

Mr. Dudley Cox Trott, F.R.C.S. Eng., has been appointed an unofficial member of the Executive Council of the Bermudas or Somers Islands.

Chelsea Clinical Society.—The first meeting of the session took place at St. George's Hospital on Nov. 20th, Dr. G. Crewsdon Thomas, the President, in the chair. In the absence of Sir Sydney Russell-Wells, owing to illness, a discussion on the Treatment of the Failing Heart was opened by Dr. John Parkinson, supported by Dr. C. E. Sundell and Dr. Robert Hutchison. Drs. Gordon Lane, H. A. Ellis, K. Eckenstein, J. D. Rolleston, G. H. Hunt, and the President took part in the discussion.

Aberdeen Medico-Chirurgical Society.—The annual business meeting of this Society was held on Nov. 22nd, when the following office-bearers were appointed:—

President: Dr. George M. Duncan. Vice-President: Dr. Peter Howie. Secretary: Dr. H. Edgar Smith. Recording Secretary: Dr. H. Ross Souper. Assistant Secretary: Dr. Robert Richards. Treasurer: Dr. George Rose. Librarian: Dr. W. Clark Souter. Editor of Transactions: Mr. G. H. Colt. Members of Council: Dr. Alexander Ogston, Dr. James Crombie, Dr. W. Clark Souter, and Dr. William Brown.

Incorporated Vermin Repression Society and College of Pestology.—At the annual dinner of the Society and College held on Nov. 21st, Lord Aberconway recalled the fact that 15 years ago he introduced the first "anti-rats" Bill into the House of Commons. To-day their Society occupied a unique position in the world; they could claim to have originated the scientific instructional film, and their anti-rat film was acknowledged by the Government to be the finest propaganda of its kind. The Society was known by its child the Rats Act, and by its lectures and writings, having been consulted by the Governments of Poland, France, New Zealand, America, Greece, Egypt, and the Gold Coast. Their concern was not only with rats and mice, whose depredations cost the British Isles well over £40,000,000 per annum, but also with vermin generally; through associated societies they had been able to arouse public opinion to the danger underlying the existence of body vermin. The year's balance-sheet told a story of enthusiastic devotion on the part of unpaid officials, and a paucity of funds which starved the usefulness of the Society.

London School of Tropical Medicine: School Dinner.—The annual dinner of the Seamen's Hospital Society, being the London School of Tropical Medicine, took place at the Hotel Victoria, Northumberland-avenue, on Nov. 21st, Sir Ion Hamilton Benn occupying the chair. In proposing "The School," in its twenty-fourth year of existence, the Chairman reminded his hearers of its two great benefactors, Joseph Chamberlain and Patrick Manson, and went on to enumerate the 20 scientific expeditions which the School had arranged. Dr. J. G. Thomson was but lately returned from Rhodesia with a fund of new knowledge regarding blackwater fever, while Dr. and Mrs. P. A. Buxton, with Mr. G. W. Hopkins had just started for Samoa in an endeavour to solve the problem of filariasis. He spoke of the Rockefeller Institute and its newly appointed director, Dr. Andrew Balfour, in which the School might indeed lose some of its autonomy, albeit this really rested with the men who staffed the School. Sir Arthur Clarke proposed "The Guests," among whom were Sir James Allen (High Commissioner for New Zealand), Surgeon Vice-Admiral J. Chambers, Sir William Leishman, Sir Walter Fletcher, and Lord Devonport. He congratulated the last-named on the achievement of having collected by aided effort the remarkable sum of £200,000 for the Seamen's Hospital. The School was, he said, retaining its name within the Rockefeller Institute in honour of the memory of Manson. Sir James Allen, in reply, spoke of the generous help offered to New Zealand by the School and warmly welcomed the Buxton-Hopkins expedition. Dr. J. M. H. Macleod proposed "The Chairman," who briefly replied. The intervals were filled up with an agreeable programme of music provided by Dr. T. Goodey and others.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—The first general meeting of the session will be held on Dec. 7th, 8.30 P.M., at 11, Chandos-street, London, W., when the presidential address will be given by Lieut.-Colonel L. W. Harrison.

ROYAL NORTHERN GROUP OF HOSPITALS.—A festival dinner was held in the Mansion House on Nov. 21st with the object of raising money to open 70 beds which had been closed owing to the strained financial position of the hospitals. The chair was taken by Earl Beatty, Admiral of the Fleet, who made a strong appeal on behalf of the Royal Northern Group of Hospitals, which, he said, had grown from the humble origin of one bed in a single room in a little side street in North London to its present great efficiency and size, now serving a population of a million. In reply to Earl Beatty's toast of "Success to the Hospital," Lord Northampton (chairman of the hospital) said that while there had been an increase in the cost of hospital services, their income had also increased, thanks largely to the ingenious schemes of their secretary, Mr. Gilbert G. Panter. Still, there was a deficit for the year of about £15,000. The closure of 70 beds was calculated to save this sum, but at the same time it meant that 1000 cases had to go untreated. Expansion, not reduction, was needed in North London. The toast of the Lord Mayor and Corporation was given by Sir Philip Sassoon, supported by the Rev. Basil Bourchier, and acknowledged by the Lord Mayor; and that of the chairman was given by Lord Riddell. During the dinner guests were invited individually to promise contributions towards the hospital funds. The response was liberal, and the secretary was able to announce later in the evening the gratifying total of £11,643. The cost of the dinner had been generously defrayed by Lord Northampton.

THE UNIVERSITY OF EDINBURGH GRADUATES IN LONDON CLUB.—The 200th dinner of the Club, held in the Connaught Rooms on Nov. 23rd, was attended by some 400 members and their guests, the Rt. Hon. the Earl of Balfour in the chair. In proposing the toast of "The Alma Mater and the Edinburgh University Club of London," Lord Balfour said that our great educational institutions had two antitheses to reconcile—namely, general culture and accurate scientific knowledge—and every year this problem became more insistent. "Many will be disposed to admit," he continued, "that it is not merely—not mainly—in the lecture-room that educational gains have been chiefly acquired. Lectures do much, contact with great teachers does more, but most of all, as we look back, do students learn from each other. It is the collision of individual character and interest that makes university training a unique benefit. It is not merely hours spent in hard study that fit a man for the battle that each of us has to fight. Hours of idleness, hours of strenuous enjoyment, the teachings of equals in age, are great educational instruments." Sir James Crichton-Browne (who was chairman in 1889) proposed "Our Guests," to which Sir Humphry Rolleston (President, Royal College of Physicians) and Sir Aston Webb (President, Royal Academy) replied. In giving the health of the chairman, Lord Dunedin spoke of the affection which Lord Balfour inspired in all those with whom he came into contact. The toast was received with musical honours and Lord Balfour, in reply, spoke appreciatively of his friendship with Lord Dunedin.

BRIGHTON WATER-SUPPLY.—The house shortage at Brighton has become so acute that residences of the bungalow type are being erected wholesale on the confines of the town where in normal times and in normal circumstances such habitations would never have been considered. Questions of water-supply and drainage have been more or less left to take care of themselves. So many bungalows have been erected in one particular locality that there is the possibility of their becoming a menace to the water-supply of Brighton. Patcham is one of the important sources of supply and, acting on the advice of the waterworks engineer, the corporation has decided to take immediate steps to acquire all the lands in the neighbourhood of the pumping station whereon houses are now being built, or are likely to be built in the future, which, if erected without regard to proper drainage conditions, might affect the water-supply. Furthermore, the corporation has decided to seek powers to make by-laws by which they may be able to control all works of drainage in connexion with building operations upon lands in the neighbourhood of their pumping stations so as to maintain the absolute purity of the water-supply. Patcham station is for the moment the immediate objective for the powers sought, but these powers will soon be needed, for the same reason, in respect of the five other pumping stations which are scattered over the South Downs. The Brighton corporation's water area covers no fewer than 44½ square miles, with a resident population of upwards of 200,000, a figure greatly increased during the summer months by the vast numbers of holiday visitors.

INFLUENCE OF ENVIRONMENT ON THE LIFE OF BACTERIA.—A course of five lectures on this subject will be given by Dr. F. W. Twort, superintendent of the Brown Institution, in the theatre of the Royal College of Surgeons, Lincoln's Inn Fields, London, W.C., on Dec. 11th, 13th, 17th, 18th, and 19th, at 4 P.M. Admission is free without ticket.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of the Metropolitan and Home Counties Maternity and Child Welfare Sub-Group will be held at 1, Upper Montague-street, Russell-square, W.C., on Dec. 7th, at 5.30 P.M., when Dr. J. W. Carr will read a paper on Signs and Symptoms of Tuberculosis of the Respiratory System in Children under Five. The meeting is open to all members of the medical profession.

COMMISSIONS IN THE R.A.M.C.—An examination for not fewer than 40 commissions in the Royal Army Medical Corps will be held on Jan. 30th next. Applications should be made to the Secretary of the War Office not later than Jan. 20th, and the presence of candidates will be required in London from Jan. 28th. Meantime those intending to compete can obtain a full statement of the duties and emoluments of the service on making written application to the Secretary, War Office, Whitehall, London, S.W. 1.

MEDICAL BENEFIT FINANCE.—In an official statement issued on Nov. 24th the Minister of Health says: Many approved societies' representatives maintain that no greater sum than 7*s.* 3*d.* per member can be taken from the funds of societies without curtailing either the ordinary cash benefits or the additional cash benefits which are already provided for their members. The Government actuary has advised that societies in general can find anything up to 8*s.* 6*d.* from their funds for the next five years without endangering the continuance of existing benefits, including additional benefits already in operation.

ROYAL DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff, and past and present students of the hospital, was held in the Trocadero Restaurant, on Saturday, Nov. 24th. The company numbered about 200, Mr. G. Northcroft, L.D.S., presiding. The Chairman, in the course of his toast to "The Past and Present Students of the Royal Dental Hospital and Dental School," announced that playing fields had now been acquired for the use of the school. In replying, the Dean, Mr. H. Stobie, L.D.S., referred to the appointment of a lecturer in radiology, and paid an appreciative tribute to his colleague, Mr. W. H. Dolamore, L.D.S., who was retiring from the teaching staff. He spoke of Mr. Dolamore as one of the finest teachers the school had ever had, a man whose initiative and determination in the face of opposition had achieved much in the interests of all dental students.

THE LATE DR. A. J. STILES.—The death occurred on Nov. 21st, at Spalding, Lincolnshire, of Dr. Arthur Jalland Stiles, in his sixty-fourth year. He graduated M.B., C.M. with distinction at Edinburgh University in 1883, where, three years later, he obtained his M.D. with commendation. In 1883 he was also admitted L.M.R.C.P.I., and the following year M.R.C.S. Eng. and L.M. Rotunda Hospital, Dublin. Dr. Stiles was one of the best known practitioners in Lincolnshire and one of the most active public men in Spalding. He was a magistrate for the Elloe division of Lincolnshire, a governor of Spalding Grammar School, a trustee of Spalding Hospital, and was associated with many other public bodies. Dr. Stiles was a brother of Sir Harold Stiles, of Edinburgh, and both his father and his grandfather practised in South Lincolnshire.

AUGUSTUS AND ALICE WALLER MEMORIAL.—A representative meeting held at the Royal Society of Medicine on June 1st last, under the chairmanship of Sir Edward Sharpey Schafer, resolved to establish a memorial to the late Prof. Augustus D. Waller, F.R.S., and Mrs. Waller, in recognition of their life-long devotion to physiological investigation. The memorial is to take the form of a fund to be used for the encouragement of scientific research. Its administration is to be entrusted to the Council of the London (R.F.H.) School of Medicine for Women. Since this meeting it has been suggested that an additional memorial might suitably be established at St. Mary's Hospital Medical School in the form of a research room, to be called the Waller Research Laboratory, in connexion with the physiological department. An influential committee has been formed to give effect to the suggestions, and it is hoped that a sum of £5000 may be raised; £1300 have already been subscribed. Subscriptions should be sent to the Hon. Treasurer, Prof. J. Mellanby, St. Thomas's Hospital Medical School, London S.E. 1, and if it is desired that donations, or any part of them, should be allocated to the St. Mary's Memorial, this should be expressed.

LONDON JEWISH HOSPITAL.—A festival dinner was held in the Connaught Rooms on Nov. 26th, Sir Humphry Rolleston in the chair. In proposing the toast of the London Jewish Hospital, the chairman emphasised the need of such a hospital in London, where there were a quarter of a million Jews. The hospital provided 50 beds and met a great need not only to the Jews, for of 52,000 out-patient attendances in 1922 about 40 per cent. were Gentiles. "To the excellence of the staff, its accommodation, X ray installation, operating theatre," he said, "I can testify with confidence, and more valuable than a personal testimonial is the practical proof of recognition by King Edward VII. Hospital, the Saturday and the Sunday Funds for financial help, and by its acceptance as a complete training school for nurses by the General Nursing Council for England and Wales. The hospital is not nearly finished, but there is a debt of already £10,000. Not only is the original plan not yet completed, but extension of the out-patient department is becoming urgent." The health of the Guests was proposed by the Chief Rabbi, the Very Rev. Dr. J. H. Herz, and Sir John Bland-Sutton replied to the toast of the Medical Profession.

THE LATE MR. G. T. BROOKSBANK JAMES.—George Thomas Brooksbank James, who died at Chichester on Nov. 15th at the age of 56, received his medical education at Westminster Hospital, where he gained the entrance scholarship and was admitted L.R.C.P. Lond. and M.R.C.S. Eng. in 1890. He held the resident posts of house surgeon and house physician at Westminster Hospital, and then turned his attention to ophthalmology. He obtained the F.R.C.S. in 1896, and in 1899 was appointed honorary assistant surgeon to the Royal Eye Hospital, Southwark, becoming honorary surgeon five years later. In 1903 he was appointed assistant ophthalmic surgeon to Westminster Hospital, becoming full surgeon in 1914. He spent part of every week at Eastbourne, where he was honorary ophthalmic surgeon to the Princess Alice Hospital. An as ophthalmologist he was a keen observer and a neat and precise operator. Systematic teaching did not much interest him, but when he had occasion to give a post-graduate lecture, it was a model of careful preparation and exhaustive treatment of the subject. He was especially interested in binocular vision and squint, a subject upon which he made many ingenious and original observations, some of which were reported in THE LANCET (1909) and in the Transactions of the Ophthalmological Society (1909). He spent much time and energy in devising new apparatus, but his modesty prevented his exhibiting his ideas to the profession or even to his immediate colleagues. Another subject in which he was keenly interested was that of glaucoma, and he described in 1912 a new method of operating for this, a method which he employed with great success. On those who worked with him he left the impression of an unusually original and versatile thinker.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, Dec. 6th.—At 4.30 P.M.

Papers to be read.—E. G. T. Liddell and Sir Charles Sherrington, Pres., R.S.: Recruitment Type of Reflexes. G. S. Carter: The Structure and Movements of the Latero-Frontal Cilia of the Gills of Mytilus. (Communicated by Prof. J. S. Gardiner.)

Papers to be read in title only.—V. B. Wigglesworth and C. E. Woodrow: The Relation between the Phosphate in Blood and Urine. (Communicated by Prof. F. G. Hopkins.) J. B. S. Haldane, V. B. Wigglesworth, and C. E. Woodrow: The Effect of Reaction Changes on Human Inorganic Metabolism. (Communicated by Prof. F. G. Hopkins.) J. B. S. Haldane, V. B. Wigglesworth, and C. E. Woodrow: The Effect of Reaction Changes on Human Carbohydrate and Oxygen Metabolism. (Communicated by Prof. F. G. Hopkins.) J. A. Campbell: Concerning the Influence of Atmospheric Conditions upon the Pulse-rate and "Oxygen-Debt" after Running. (Communicated by Prof. L. Hill.) J. Gray: The Mechanism of Ciliary Movement, IV. The Relation of Ciliary Activity of Oxygen Consumption. (Communicated by Prof. J. S. Gardiner.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 3rd.

OCCASIONAL LECTURE: at 5.30 P.M.

Dr. Strandberg (Copenhagen): Treatment of Tuberculosis of the Nose and Throat by Finsen Light Baths; results (with epidiascopic illustrations).

Members of the Sections of Electro-therapeutics, Laryngology, and Medicine are specially invited to attend this lecture.

TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.

Communication:

Dr. Bamforth: Note on a Small Outbreak of Dysentery associated with an unusual bacillus.

Discussion:

On Sprue and Cœliac Disease. To be opened by Sir Leonard Rogers. Dr. Aldo Castellani, Dr. Reginald Miller, Dr. H. H. Scott, Dr. S. Arthur Powell, Lieut.-Colonel W. P. MacArthur, and others will speak.

Members of other Sections, and especially of the Section for the Study of Disease in Children, are cordially invited to attend.

Tuesday, Dec. 4th.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)

Discussion:

On Myositis Ossificans Traumatica. To be opened by Sir George Makins.

Fellows and Members are invited to show patients, radiographs, or specimens illustrating the subject under discussion.

PATHOLOGY: at 8.30 P.M. in the Pathological Dept., University College Hospital Medical School, Gower-street, W.C. 1.

Communications, &c.:

Dr. G. W. Goodhart: Achlorhydria and Achylia Gastrica.
Dr. Cecil Price-Jones: Contact Hæmolysis.
Dr. A. M. H. Gray: Chalky Tumours of Skin.
Mr. R. Grant: Bicuspid Aortic Valves and Subacute Infective Endocarditis.
Mr. V. R. Khanolkar: Non-specific Training of Antibody Production.
Dr. J. W. McNee: Experiments on Bile-pigment Formation.
Mr. W. G. Barnard: Pathological specimens.

Wednesday, Dec. 5th.

SURGERY: at 5.30 P.M. (Cases at 5 P.M.)

Pathological and Clinical Meeting:

Members are invited to bring patients and pathological specimens, and to send particulars of these to the Hon. Secretary (Mr. H. W. Carson, 111, Harley-street, W.), as soon as possible, but in any case not later than Dec. 3rd.

Patients should be in attendance by 5 P.M., and it would greatly facilitate arrangements if pathological specimens were accompanied by short descriptive labels.

Thursday, Dec. 6th.

OCCASIONAL LECTURE: at 5.30 P.M.

Sir Jagadis Bose: Assimilation and Circulation in Plant (with demonstration of apparatus).

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.

Specimens:

Mr. T. G. Stevens: (1) Endothelioma of Bartholin's Gland; (2) a Very Early Stage of a Papilliferous Growth in an Ovarian Cyst.

Mr. J. Bright Banister: (1) Sarcoma of the Fallopian Tube; (2) Carcinoma of the Fallopian Tube; (3) Ruptured Cæsarean Section Scar.

Short Communication:

Dr. Victor Lack: A case of Cyst Development in an Ovarian Graft.

Papers:

Dr. T. I. Candy: Radiography of the Fœtus in Utero.
Dr. Geoffrey Fildes: Radiography of the Fœtus in Utero.

Demonstration:

Prof. Louise McIlroy: Diagnosis of Pregnancy by X Rays

Friday, Dec. 7th.

LARYNGOLOGY: at 5 P.M. (Cases at 4 P.M.)

Cases and specimens will be shown by Dr. Russ Wood, Mr. Scott Ridout, Mr. Peters, Dr. Dan McKenzie, Dr. Cathcart, Sir James Dundas-Grant, Mr. T. B. Layton, and others.

LARYNGOLOGY: at 8.30 P.M.
ANÆSTHETICS: ,,
ODONTOLOGY: ,,
OPHTHALMOLOGY: ,,
OTOLOGY: ,,
SURGERY: ,,

Joint Discussion:

On the Comparative Value of Cocaine Substitutes. To be opened by Dr. P. Watson-Williams. Followed by Mr Foster Moore (Ophthalmology), Mr. F. N. Doubleday (Odontology), Mr. F. S. Rood (Anæsthetics), Sir William Milligan (Otology), and others.

Saturday, Dec. 8th.

OTOLOGY: at 10 A.M.

Cases and Specimens:

Mr. A. H. Cheatle: Three cases of Injury to the Ear caused by Spirit Injection for Neuralgia.

Sir James Dundas-Grant: Two (old) cases of Radica Mastoid Operation without Plastic.

Cases will also be shown by Dr. T. B. Jobson, Dr. A. R Friel, and others.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

WEDNESDAY, Dec. 5th.—8 P.M., Mr. Arthur William Hill The Work of the Royal Botanic Gardens, Kew.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Dec. 3rd, to THURSDAY, Dec. 6th.—Lectures a the Hampstead General Hospital, Royal Westminste Ophthalmic Hospital, and the Western Genera Dispensary (Children's Clinic).

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Dec. 3rd.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Mr. Addison: Surgical Wards.

Tuesday.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Dr. Burrell: Chest Cases. 2.30 P.M., Dr. Pritchard: Medical Wards.

Wednesday.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

Thursday.—11 A.M., Mr. Simson: Gynæcological Demonstration. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

Friday.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

UNIVERSITY COLLEGE HOSPITAL.

Wednesday, Dec. 5th.—5 P.M., Dr. Charles Singer: Representation of Disease in Art.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, Dec. 6th.—4 P.M., Dr. Pearson: Chronic Infections of the Lung.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

Thursday, Dec. 6th.—5 P.M., Mr. L. C. Rivett: Hydramnios.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Dec. 4th.—5 P.M., Dr. A. Whitfield: Fungus Infections.

Thursday.—5 P.M., Dr. W. K. Sibley: Acne.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Dec. 5th.—4 P.M., Dr. A. H. Bygott: Problems of Death Certification and Registration.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Wednesday, Dec. 5th.—6 P.M., Sixth Lecture, Sir Frederick Mott: Mind and Body.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES.

Monday, Dec. 3rd.—(At the Children's Hospital.) Mr. W. A. Thompson: Appendicitis and Intussusception in Children.

Tuesday.—(At the Southern Hospital.) Mr. O. H. Williams: Diagnosis of Chronic Pain in the Abdomen.

Wednesday.—(At the Northern Hospital.) Mr. Rawlinson: Genito-urinary Cases.

Thursday.—(At the Stanley Hospital.) Mr. J. P. Morrison: Surgical Tuberculosis in Adults.

Friday.—(At the Royal Infirmary.) Dr. MacKenna: Eczema and its Treatment.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Dec. 4th.—4.15 P.M., Mr. J. Morley: Acute Obstructive Cholecystitis.

Friday.—4.15 P.M., Prof. J. S. B. Stopford: The Sensory Pathway.

ANCOATS HOSPITAL.

(Special Course on Surgical Tuberculosis.)

Thursday, Dec. 6th.—4.30 P.M., Mr. F. H. Diggle: Otolaryngeal Tuberculosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.

Tuesday, Dec. 4th.—(At the Royal Infirmary.) 3.30 P.M., Mr. Cuff: Clinical Cases.

Friday.—(At the Royal Infirmary.) 3.30 P.M., Dr. Barnes: The Early Diagnosis of Gall-stones.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

Friday, Dec. 7th.—(At Boscombe.) Dr. C. E. K. Herapath: Bradycardia and Tachycardia.

Appointments.

Gaye, A. W., M.B., B.Ch. Camb. & Manch., has been appointed Assistant Medical Officer of Health for Ipswich.

Roth, P. Bernard, F.R.C.S. Eng., Orthopædic Surgeon to the London Homœopathic Hospital.

Queen Charlotte's Lying-in Hospital: **Hall, N. B.**, M.B., B.S. Adelaide, Resident Medical Officer; **Page, Hilda**, M.R.C.S., L.R.C.P. Lond., and **Ramsden, W. M.**, M.B., B.S., M.R.C.S., L.R.C.P. Lond., Assistant Resident Medical Officers.

Vacancies.

For further information refer to the advertisement columns.

Birmingham and Midland Eye Hospital, Church-street.—Res. S.O. £150. Also Second H.S. £110.

Birmingham City Hospital for Infectious Diseases, Little Bromwich—Sen. Asst. M.O. £350.

Brighton County Borough Mental Hospital, Hayward's Heath.—First Asst. M.O. £700.

Camberwell Infirmary.—Asst. Med. Supt. £500.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

Colonial Service, British Guiana.—Three Asst. Govt. M.O.'s. £500.

Coventry and Warwickshire Hospital.—Hon. Pathologist. £200.

Darlington Union.—M.O. and Public Vaccinator. £604 14*s.* 2*d.*

Derby, Royal Derby and Derbyshire Nursing and Sanitary Association.—Hon. Obstet. P.

Eastbourne, Royal Eye Hospital.—Hon. Anæsthetist.

East London Hospital for Children, &c., Shadwell, E.—Morning Cas. O. £120.

Edinburgh Royal Infirmary.—Supt. £700.

Federated Malay States Hospitals.—Radiologist. £840.

Folkestone, Royal Victoria Hospital.—Res. M.O. £150.

Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P., H.S., Cas. M.O. and Cas. S.O. Each £100.

Hospital for Women, Soho-square, W.—Res. M.O. £100.

Huddersfield, Bradley Wood Sanatorium, &c.—Res. M.O. £500.

Johannesburg, South African Institute for Medical Research.—Asst. Pathologist. £800.

Kensington, Fulham, and Chelsea Hospital, Earl's Court, S.W.—Hon. Anæsth.

Leeds Public Dispensary.—Hon. Radiologist. Also Hon. Dental Surgeon.

Lincoln County Hospital.—Sen. H.S. £250.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £150.

Manchester Royal Infirmary.—Sen. Med. Reg. £150. Also Asst. M.O. £35.

Middlesex Hospital, W.—M.O. Electrotherapy Dept. £300. Sen. Asst. Radiologist. £500. Two Asst. Radiologists. Each £100.

Middlesex Hospital and Medical School, W.—Eight Registrarships. Each £300.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P. Also Res. M.O. £200.

Oxford, Radcliffe Infirmary and County Hospital.—Res. Accoucheur. £120.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £125.

Preston Royal Infirmary.—H.S. £200.

Prince of Wales's General Hospital, Tottenham N.—H.S. £150 Clin. Assts.

Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O. and Res. Obstet. S.

Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Hon. P.

St. Peter's Hospital, Henrietta-street, Covent Garden, W.C.—Secretary. £400. Also Clin. Assts.

Salford Royal Hospital.—Anæsthetist. £1 1*s.* per session.

Union of South Africa Govt.—Asst. P.'s. £460.

University College Hospital, Gower-street, W.C.—Tuberculosis O. £300.

Western Dispensary, 38, Rochester-row, Westminster, S.W.—Resident. £100.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., and Res. Cas. O. Each £100.

Whalley, near Blackburn, Claderstones Certified Institution for Mental Defectives.—Asst. M.O. £432.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Waltham Abbey (Essex) and Dulverton (Somerset).

Births, Marriages, and Deaths.

BIRTHS.

Baron.—On Nov. 19th, at Golders Green, N.W., the wife of Dr. R. W. Baron, of a daughter.

Kane.—On Nov. 23rd, the wife of M. Kane, M.C., M.B., B.S., of Gwanda, S. Rhodesia, of a daughter.

McMillan.—On Nov. 13th, at Dudley-road Hospital, Birmingham, the wife of Kenneth McMillan, F.R.C.S., of a son.

MARRIAGES.

Galbraith—Gledhill.—On Nov. 22nd, at the Congregational Church, Bromley, Samuel Nicol Galbraith, M.B., D.P.H., to May, only daughter of the late James Gledhill and of Mrs. Gledhill, "St. Andrew's," Plaistow-lane, Bromley, Kent.

Nichols—Mason.—On Nov. 19th, at Seaview, Isle of Wight, Henry Wilfrid Lee Nichols, M.R.C.S., L.R.C.P., to Margaret Dorothy Mason, M.R.C.S., L.R.C.P., elder daughter of Mr. and Mrs. Charles Mason, of Wepener, Seaview.

DEATHS.

Ashton.—On Nov. 23rd, at Rue Libergier, Rheims, Charles Ernest Ashton, M.R.C.S. Eng.

Elliott.—On Nov. 22nd, in King's College Hospital, after an operation, C. N. Elliott, M.B., J.P., of Oundle, Northants, aged 75.

Roe.—On Nov. 13th, at The Moorings, Gorran Haven, Cornwall, Montagu Walter Roe, M.R.C.S., L.S.A., aged 62.

Stiles.—On Nov. 21st, at The Terrace, Spalding, Lincs, Arthur Jalland Stiles, M.D., J.P., aged 63 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE POSITION OF PHYSIOLOGY IN SCIENCE AND MEDICINE.[1]

By R. J. S. McDowall, D.Sc., M.B., M.R.C.P.Edin.,
PROFESSOR OF PHYSIOLOGY, KING'S COLLEGE, UNIVERSITY OF LONDON.

Medicine emerged from the shadow of the Dark Ages in a perilous state, having been held together for 1400 years only by the erroneous theories of Galen, and ruled by blind speculation and dogmatism. With the Renaissance came the rebirth of medicine, particularly of anatomy. Modern physiology owes its beginnings and inspiration to the great anatomists of the sixteenth century; Padua, under the guidance of Vesalius, rose to be the greatest medical school in Europe, and practical observation became the keynote of the new medicine.

Foundations of Modern Physiology.

William Harvey, whose discovery of the circulation was published in 1628, was a graduate of Cambridge who subsequently studied at Padua, whence no doubt he derived much inspiration. Harvey's work marks the dawn of experimental method, and must always remain a masterpiece of physiological reasoning. The tempting subject of the function of the human body naturally attracted physicists, full of the discoveries of Galileo and his contemporaries. Mathematical laws were rigidly applied to physiological problems; for example, Borelli knew that the heart was about the size of the muscles which move the jaw, and by finding the weight which a man could support from his lower jaw he calculated the force of the heart, which he found to be 135,000 lb. Another member of the school, on a dynamical basis, calculated the same force to be 16 oz. Mathematical calculation replaced the necessity for practical experiment and careful observation, and if a warning is necessary for the future, it may be remembered that Borelli, the greatest of the school, died in poverty. For a period physics and mathematics ran riot in physiology, but left nothing of much permanent value, although we know that later these subjects, combined with accurate observation of biological phenomena, have been of enormous value to physiological science.

The chemists, too, were attracted, with more enduring success. The great outcome of the experimental method of Harvey was the clearing of the physiology of the respiration which up to the time of Lavoisier was entirely the work of British scientists. This period is important in the history of chemistry as well as in that of physiology, as by the discoveries of this time chemistry was emancipated from alchemy. The chemists were not perhaps interested in physiology, but they were engaged in what Sir Clifford Allbutt calls the "pathetic quest after oxygen"; having found the latter and the other fundamental gases they retired from the physiological world, no doubt to study the great discoveries in their own subject.

While Harvey's observations were extended and the capillaries discovered, men began to take an interest in the physiology and minute structure of the digestive tract. These advances were for the most part the result of the discovery of the microscope, and we have at this stage the beginnings of histology. We read, too, of the heroic Spallanzani swallowing sponges tied to pieces of string and pulling them up again that he might investigate the nature of the gastric juice. Since the time of Harvey there has been a steady progress in physiology. With a few exceptions, of which the greatest is perhaps the first recording of blood pressure by Stephen Hales, the advances were made on the continent.

British Physiology.

British physiology is only about 100 years old. In the first instance, the anatomists held the field, and great anatomical schools existed in Edinburgh, Cambridge, and London. The anatomists, who were the only physiologists and the only comparative anatomists, soon realised that the subject was becoming too large for them, and set about founding collateral schools of physiology. One of the earliest chairs in physiology was founded in Edinburgh, and from 1847 was held by Hughes Bennett, in whose memory part of the present physiological laboratory was built. The chair was not, however, a full-time one, and was known as the Institutes of Medicine, a striking sidelight on how important physiology was considered. Bennett was succeeded in 1875 by his pupil Rutherford, who, it is interesting to note, was for a period professor of physiology in this College. From the Edinburgh anatomical school there came to University College, London, in 1836 William Sharpey. He was nominally professor of general anatomy, but worked largely at histology, and soon attracted Michael Foster and Burdon-Sanderson to his laboratory. Foster subsequently, on the recommendation of Huxley, went to Cambridge, and Burdon-Sanderson to Oxford, the latter being succeeded at University College by Schafer, who was also a pupil of Sharpey. As in 1899 Schafer went to Edinburgh to succeed Rutherford, the original Edinburgh school is now only represented by the Glasgow school of physiology. With the latter exception all British physiologists are the direct or indirect descendants of Sharpey and his illustrious pupils.

Since his time the science has advanced with great rapidity, but its record is one of personal toil and hardship. It has been said that all science has progressed by men neglecting what they were paid to do—namely, to teach. It would perhaps be more generous to say that it has progressed as the result of the sacrifice of the spare time of those engaged in it. Physiology has had no more devoted disciple and apostle than my illustrious predecessor Prof. W. D. Halliburton, who in the latter part of last century saw what a future there was for chemistry in physiology, and along with Gamgee and Sheridan Lee, must be considered the founder of British biochemistry. His book, the first of its kind in this country, rescued from chaos the subject to which he has devoted his life. He also wrote a text-book on physiology for students, of which for thirty years a new edition has been required on an average of less than every two years. In 1916 he undertook, at first single-handed, the editorship of "Physiological Abstracts," a monumental work now carried on by Sir William Bayliss and four assistants, and now so important that its taking over by the Medical Research Council is, I believe, being considered. Add to a consideration of his literary work the fact that Halliburton was professor of physiology in this College and in the University, and we have not far to seek for the cause of his premature retirement. We are pleased to think that he can once more be amongst us, and it is our best hope that he will long continue his association with the subject and the College in which he has earned the love and gratitude of his fellow-workers.

Physiology as a Separate Subject.

As a science, physiology makes generous use of the cognate sciences chemistry, physics, mathematics, zoology, and botany. It is impossible to study physiology without having some knowledge of these subjects; physiology to-day is a place of exchange, almost too large to be called a subject. The designation professor of physiology has now very little meaning. For the purpose of the M.B. examination the subject is still divided into histology, experimental physiology, and chemical physiology, but in some schools histology comes under the professor of anatomy, as is customary on the Continent, while chemical physiology is taught by a professor of biochemistry. Chairs of physiology are no longer restricted to those having a medical qualification and the advent of the non-medical physiologist, of which there are now four holding chairs, marks a distinct stage in the development of the subject.

Development of Biochemistry.

As physiology attracted men with special training in chemistry, and as the subject developed, these men found it increasingly harder to keep in touch with those parts of the subject which were not obviously chemical. At first known as chemical physiologists, they are now designated under the more general term biochemists. This separation has led not only to the development of the chemical aspects of physiology, but also to increased study of the nature of the substances found in living organisms from the point of view of pure chemistry. For example, a physiologist is extremely interested in the relationship of adrenalin and urea to the functions of the body; but the average biochemist is just as much, if not more, interested in the artificial building-up and chemical formulæ of these substances. In other words, the biochemist is as closely allied to the organic chemist as he is to the physiologist. I have heard it said that modern biochemists are organic chemists who make a living by teaching physiology; this statement is perhaps a little far-fetched, for the biochemist has now developed an intermediate science of his own, with societies, journals, and an entity increasingly distinct. Young men are now taking up a career of biochemistry quite apart from organic chemistry or physiology. Such subdivision is the inevitable result of the rapid growth of the subject, and whether there will be a similar growth on the physical side is a matter of conjecture. There are, however certain indications of a coming advance from the direction of zoology and botany, in both of which there is a vast wealth of uninvestigated physiology.

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[1] An extract from the inaugural address delivered at King's College, Oct. 4th, 1923.

Application of Physiology.

But physiology is not a borrower only: it brings new knowledge into the older sciences. The string galvanometer, galvanic electricity, and *beta*-oxidation of fatty acids are examples. The science of physiology pays no heed to its application, nor is it right that it should if real progress is to be made. We must experiment in the cause of knowledge. Many discoveries made in the first instance in the cause of science have subsequently been of enormous benefit to mankind. Who would have thought that the discoveries of Pasteur would have led to the work of Lister? Who would have thought that the Hertzian waves had anything to do with wireless telegraphy? Take also our knowledge of sugar: all sciences have combined in adding to our knowledge of its relation to the animal and vegetable worlds. A vast amount of information has accumulated, but the pure physiologist does not concern himself with whether it is going to be applied to the cure of diabetes or the growing of sugar beet. What was practically insulin was discovered many years ago by Zuelzer, and it appears likely that his experiments failed because he over-dosed his animals. Meantime our knowledge of sugars had greatly increased from the purely scientific aspect; when insulin was again discovered by Banting it was as if a light had been applied to a mass of inflammable material, and all the accumulated knowledge could be applied in an incredibly short space of time for the benefit of mankind. Without the purely scientific advances this application would not have been possible. One is reminded of Spratt, who, when defending the Royal Society for supporting experiments in the cause of mere knowledge, said: "If they are to persist in contemning all experiments excepting those which bring with them immediate gain, they might as well cavil at the providence of God that He has not made all the seasons to be times of mowing, reaping, and harvest."

Physiology and Medicine.

Physiology has a special relation to medicine; we may call physiology the study of the functions of living organs and tissues, while medicine is concerned with the restoration of function which has become abnormal. The physician should therefore know the functions of the various tissues, and the factors on which those functions depend. There was a time when Voltaire said, perhaps with some reason, that doctors were men who poured medicine of which they knew little into bodies of which they knew less; that day is rapidly passing, and the scientific knowledge of the clinician is now as important as his bedside manner. In other words, the art of medicine is being replaced by the science of medicine.

In recent years physiology has been increasingly prominent in medicine. Some of the greatest advances in the treatment of disease have come from physiology—e.g., insulin, thyroid, heart, and kidney therapy. Further, the limitations of physiology are the limits of scientific medicine. Our ignorance of certain diseases, such as nervous diseases or chronic joint conditions, is largely due to our ignorance of the physiology of the parts concerned. The same applies to our knowledge of cancer. As Sir William Bayliss has pointed out, the greatest obstacle is our ignorance of the physiology of the simple cell and cell growth. Physiological literature has become immensely valuable to medicine. Physiology also brings into medicine the methods of science, and these methods are of the utmost value in medical research. The medical student often wonders why he has to learn about old experiments—the medical student lives in constant dread of being over-educated. It is good that he should know how well his predecessors have laboured in his interest, but it is also well that he should know the methods of investigation and to weigh the evidence which results from such investigations that in due course he may apply his knowledge to disease. In this physiology is of enormous value educationally, as the whole subject is made up of methods of investigation and of the results which can be made from the results.

Present Position of Physiology.

To-day physiology has a place of importance it never has had before. The General Medical Council demands more physiology for medical students; the subject is placed on a level with the older pure sciences, and the Royal Society has for the first time a president who is a pure physiologist. But it must not be forgotten that physiology owes its origin to medicine, and especially to anatomy, being taught until comparatively recently by men whose chief interest was really medicine. Medicine has made progress in the subject possible, for the most part providing laboratories and the equipment, and also the means of livelihood for physiologists. There is an increasing tendency for students to take physiology as a science subject, but over 90 per cent. of students who take physiology are still preparing for a medical qualification. Perhaps the words of the late A. D. Waller of this University best sum up the position: "Physiology must be studied for its own sake, but the physiologist whose immediate motive is *the want to know* may not deny his debt of service to the community of which he forms a part and whose services he enjoys. And the channel through which he can repay some part of that debt lies first of all in the service he may be able to render to the practice of medicine—to the knowledge and power of the physician, whose immediate motive is *the want to help.*"

The Future of Physiology.

Now we may glance for a moment into the future. It is indeed a difficult problem. The subject is assuming unmanageable proportions. Expansion by medical men and chemists is well begun, physicists have arrived, botanists and zoologists are at the gate. Broadly speaking, botanists have come to the end of their descriptive, systematic, and histological stage, and the majority are now turning their attention to the physiology of the plant. In zoology, too, there has been an increasing tendency to study the living animal; the older zoologists wonder what is going to become of their subject, so many of the younger men are going over to the physiological side.

There seems to be but one solution—namely, the establishment of a definite subject known as general physiology to include all those who are at present studying the sciences of physiology and biochemistry, together with zoological and botanical physiologists. There is a whole field practically unexplored in the physiology of the lower vertebrates and the invertebrates. The study of homologous organs will throw an enormous amount of light on the physiology of the higher animals. General physiology will be a subject of pure science, included in the preliminary scientific studies of the medical student. It will, I believe, be necessary to teach more principles, with logical reasoning not so over-burdened with detail as to obscure those principles.

There will be a special or applied physiology in which the student will be taken further with special regard to application. Agriculturists will be taught by those who are conversant with the problems of agriculture, medical students by those who know medicine. But the teacher must be a physiologist first, and an applied physiologist later; a knowledge of the fundamental subject is essential. In one University at least in America such a plan has actually been adopted and two well-known physiologists, G. N. Stewart and C. J. Wiggers, have been associated with each other; in this country small courses in applied or human physiology have been instituted to augment scientific physiology.

The ideal is, of course, that the student should leave physiology knowing, so far as modern knowledge permits, what is a normal man. This, of course, means close coöperation with the hospitals. It seems to me that those responsible for the training at hospitals during the first three or even six months should be in direct contact with the physiology departments, if not themselves the applied physiologists. No man would ever think of becoming a surgeon without having a special training in anatomy; physiology bears the same relation to medicine that anatomy does to surgery. The surgeons go so far as to insist that prospective Fellows of the Royal College of Surgeons pass not only a special examination in anatomy, but also one in physiology. I feel sure that if it became fashionable for a man to do post-graduate physiology before going into academic medicine, there would be not only an impetus given to physiology, but also a marked advance in scientific medicine. The physician of the future will, I am persuaded, require a special training in physiology before proceeding to pathology and medicine just as the surgeon requires anatomy. Some other method may be found, but undoubtedly this is the problem of the immediate future in physiology and medicine. Some of you may not agree with what I have said; if so, let us not forget the words of Hippocrates: "Art is long, life is short, experience is fallacious, judgment difficult."

MIDWIFERY TEACHING AND PRACTICE IN INDIA:

ELIMINATION OF THE INDIGENOUS MIDWIFE.

THE efforts being made to improve the condition of midwifery teaching and practice in India are slow to bear fruit, but some progress is being made. In 1921 Sir Norman Walker, who was deputed by the General Medical Council of Britain to visit the Medical College of India and investigate as to the teaching in midwifery, made the following remarks after visiting the Medical College and Hospital, Lucknow: "In every respect, save that of midwifery, it seems to me an admirable institution. Its hospitals, its laboratories and its lecture rooms are all very well equipped, but the 'custom of the country' in respect of midwifery is the same as at Lahore, and there is no early prospect of change." This defect in the teaching of midwifery is now being met (according to the Triennial Report[1] of Civil Hospitals and Dispensaries of the United Provinces for the years 1920, 1921, and 1922, just issued by Colonel A. W. R. Cochrane) by deputation of students to the Madras schools. The College admitted 132 students during the triennium as against 90 in the previous three years; all but 11 were residents of these provinces. According to Colonel Cochrane, who is Inspector-General of Civil Hospitals in the United Provinces, the efforts to improve indigenous dhais financed by the Victoria Memorial Scholarship Fund (Rs.6430 per annum) and by Government (Rs.10,000 per annum) has met with but little success, and it has become recognised that, without relinquishing the efforts to bring about improvement, maternity and child welfare will be better served by the training of women of the non-indigenous class as dhais. These will gradually replace the indigenous women and in the meanwhile force her to improve her methods through the results of competition. Further, it is held to be wiser to concentrate all efforts for improvement at four centres and endeavour to secure real results to serve as an object-lesson of what is possible. The death-rate of children under one year, up to 40 per cent. in some places, is, as Colonel Cochrane observes, an appalling figure.

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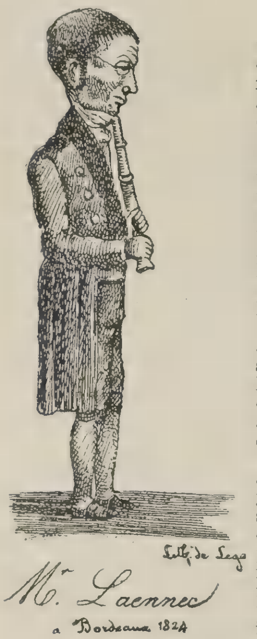
[1] Allahabad: Government Press. 1923. Rs.2-10-0.

LAËNNEC IN 1824.



The caricature of Laënnec here reproduced is taken from the pages of the special number of the fortnightly *Journal de Bordeaux et du Sud-Ouest*, published on Sept. 20th on the occasion of the Seventeenth Congress of Medicine held at Bordeaux. It is recalled that the welcome given to the invention of the stethoscope in 1816 was at first no more cordial at Bordeaux than at Paris. In 1824, however, a wealthy Spaniard living near Bordeaux summoned Laënnec (the consultation fee being fixed beforehand at 1000 pistoles, or about 10,000 francs), and the latter took advantage of his visit to demonstrate to the Bordelais physicians his method of auscultation. The caricature, apparently the work of a medical student, was drawn upon one of these occasions, and shows "Laënnec en redingote trop large avec une grosse tête sur des jambes grêles, tenir son stéthoscope comme un joueur de clarinette. La charge est d'autant plus de circonstance que le génial médecin était, on le sait, bon musicien et jouait de la flûte." The *Journal de Bordeaux*, it is interesting to note, will celebrate its centenary in 1929.

THE IMMOBILITY OF THE PLANT-BODY.

At a recent meeting of the Royal Medico-Chirurgical Society of Glasgow Prof. F. O. Bower, F.R.S., pointed out that the fact that ordinary plants are fixed in the soil and therefore stationary is so familiar that we pay little attention to it, and often remain quite blind to the far-reaching consequences which it entails. Since Darwin's book on the Movements of Plants was published, it has become common knowledge that plants do move, though under restrictions by their encysting walls. The protoplasts of an adult tissue can only move within their restricting prison, and the plant as a whole is immobile. The rooted position is, however, clearly effective for purposes of photosynthetic nutrition. The immobile plant can nourish itself and provide food also for the rest of the organic world; but its immobility imposes restrictions which have affected the whole course of plant evolution. So long as water is the medium in which plants live, and the gametes are motile in it, and especially if there are means of directing their movements to the right spot, fertilisation is possible for algæ. In land plants, however, difficulties at once arise. By peculiar specialisation mosses and ferns are still able to subsist on land, using "casual water" as the necessary medium for fertilisation, but are thus necessarily restricted to habitats where "casual water" is at all events sometimes available. On the other hand, the fully fledged land plant has to do without it. This is the reason for all those wonderful pollination mechanisms which have become the playground of botanical science. Mechanical ejection, air and water transit, and animal agency play their part; and pollination, the necessary step to fertilisation, is thus made possible for the immobile plant. When the seed is ripened a fresh difficulty arises in the spread of the seeds so that each shall have its chance. Again ejection, wind, water, and animal agency are called in with curiously parallel though distinct results.

Prof. Bower went on to state that there is yet another disability following from the immobile habit. The plant is the passive victim of predatory animals, being unable to escape by speed or cunning. Pasture grasses and clover, and any fodder plants are the natural prey of the grazing animal. Their sole resource is to restore as quickly as possible the parts that have been lost. Some plants develop poisonous or offensive juices, while others are no doubt protected from attacks by snails by the sharp crystals called raphides which are imbedded in mucilage; this swells as the tissues are gnawed, the cells rupture, and the sharp needles penetrate the delicate mouth of the marauder. It has been shown by experiment that even hungry snails avoid plants so protected. It thus appears that the whole evolution of plants has been overshadowed by the early sacrifice of mobility. Truly for them, "C'est le premier pas qui coûte." Encystment, while it secures protection, raises also many difficulties, and the further evolution of the plant has largely consisted in living them down. The wonder of it is that plants have succeeded as well as they have done. Necessity, with them, has indeed been the mother of invention.

THE KIND OF NURSE SHE WANTS.

To the Editor of The Lancet.

Sir,—I have just recovered from a troublesome prolonged but not very dangerous illness in which I badly wanted someone to wash me, to bring me my food, to make my bed, and in fact to attend to my physical needs. My doctor wished me to engage a trained nurse, a demand with which I should have been only too happy to comply if it had been possible to provide the extra accommodation, household service, and the meals more elaborate than the usual family ones. I could not face the prospect of having a guest who was entitled to a higher standard of comfort than that of my very modest household. The situation is a familiar one for which I can see no solution. Maybe there is no solution. I enclose my card and sign myself yours faithfully

A Middle-class Patient.

⁎⁎⁎ We deal with this letter in a leading article.—Ed. L.

THE CONSTANT CURRENT IN GRAVES'S DISEASE.

Dr. Stephen Portret, of Paris, has recently called attention (*Bulletin Officiel de la Société Française d'Electrothérapie*) to the fact that a certain number of cases of Graves's disease are resistant to radiotherapy, while they may be amenable to the older method of treatment by constant current. After giving details of the technique employed, Dr. Portret quotes a number of these resistant cases that seem undoubtedly to have improved under the electrical applications. It is presumed that the method would not be considered applicable to any very large proportion of cases; it would be unsuitable for cases in which tachycardia was present, due to permanent myocardial changes. Radiologists might, however, with profit bear in mind the possibilities of help from electrical methods particularly when the skin of the neck demands a rest from radiological exposures.

A STUDENT "DOCTOR."

At Woolwich an inquest was held on the body of a widow, 72 years of age, whose death was shown by post-mortem examination to have been due to chronic ulceration of the stomach and a ruptured blood-vessel. During her last illness she had been attended by a man, who on his doorplate described himself as "Dr. C. W. O'Donoghue," but who in the witness-box stated that he held the diploma of State Medicine in India, and admitted that he was not qualified to practise in this country. He stated, however, that he was a student, and that he was about to take his final examination. The woman had died while being examined by him with a qualified doctor, who had been invited to consultation. The coroner made forcible comment on O'Donoghue's story, saying that the case was a flagrant breach of the Medical Act, that O'Donoghue must have known that he had no right to practise as he had done, that he hoped that the Medical Defence Union would take action, and that O'Donoghue would fail to secure registration. He expressed sympathy with a qualified practitioner at his having been in anyway connected with such a man, who, he said, could neither spell medical terms nor pronounce them.

Dr. J. A. Marsden, in a communication, asks the question: Why is it practically impossible for cancer to grow in young persons? His own deduction is that spontaneous cure of cancer might take place in adults from the restoration of the influence which is protective in youth. He suggests that patients with this disease should be treated by interstitial grafting or by administering extract of the cells of Leydig.

An Address

ON

SOME USES OF DIGITALIS.

Delivered before the City Division of the British Medical Association

By G. A. SUTHERLAND, C.B.E., M.D. Edin., F.R.C.P. Lond.,

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We are all pleased with our successful treatment in cases of heart disease, but how much cause have we to congratulate ourselves on the direct treatment of heart disease by means of drugs? I do not think that in our medical armamentarium we possess any drug which acts directly and beneficially on disease of the heart. If we take the outstanding diseases of the heart calling for treatment we have to consider endocarditis, myocarditis, pericarditis, myocardial degeneration, valvular sclerosis and contraction, and adherent pericardium. These are the chief forms of organic heart disease. Will anyone maintain that these diseases are directly amenable to successful treatment by means of drugs? If any such there be it would greatly benefit the public and the profession if he were to convey his knowledge and methods to his medical brethren in such a way that they also may be able to treat these conditions successfully. So far as I know this has never yet been done.

If we consider the outstanding function of the heart, the pump-like action in maintaining the circulation, this great function is liable to failure in heart disease, and claims are made that the contractile power of the heart muscle can be improved and increased by the direct action of drugs. Pharmacologists teach this, students imbibe the information, become qualified, and go into practice believing it, and medical men pass the whole of their lives, honourably and successfully, with this dogma as a fundamental part of their creed. If an unbeliever asks for proof he is simply told that everyone knows it. I am one of those humble unbelievers who has hitherto failed to find any drug which will act directly and beneficially on the cardiac power of contraction.

Use of Drugs in Disturbances of Cardiac Action.

On the other hand, if drugs have been a failure in diseases of the heart, and have failed to improve contractile power in the heart muscle, they have found a great field of usefulness in connexion with disturbances of the cardiac action. These disturbances may be associated with sound or diseased hearts. They may be disturbances of rate or of rhythm or of both. They may arise in the heart itself, or be the result of defective blood-supply to the heart, or be caused by some condition of the blood, or may be nervous in origin. They may be indicated by an increase of the heart rate or a slowing. These disturbances are familiar to all under the names of auricular flutter, auricular fibrillation, heart-block, paroxysmal tachycardia, extra-systoles, &c. We may sum up these disturbances as being due to an abnormal rhythm or tachycardia or bradycardia. Unconsciously in the past many have successfully treated these disturbances, while they thought they were treating the disease of the heart or increasing its muscular power. Empirically the benefit was obtained in certain cases by counteracting the bad effects which these disturbances were producing in the heart's action, although the modus operandi was not understood or was erroneously interpreted. Thus, in cases of delirium cordis (now described as auricular fibrillation) digitalis was looked on as a drug which steadied the heart and improved the muscular tone and the contractile power. At the present time we are content to treat the disturbance which has arisen in connexion with auricular fibrillation, to reduce the excessive number of ventricular beats which have developed, and when this has been accomplished we can safely leave the muscular tone and the contractile power of the heart to do the rest.

In all of these disturbances the chief factor to be considered is the effect which the disturbance has on the efficient action of the ventricles. A marked disturbance of the heart may be present—for example, extra-systoles—but if the ventricular action is efficient the patient has no signs or symptoms of cardiac failure. On the other hand, if the ventricular action is deficient, if it is unequal to the carrying on of the circulation, symptoms and signs of cardiac failure will begin to appear. The effect on the ventricles is the standard by which we measure the importance of the disturbance present and decide as to whether treatment is called for or not. Similarly when such a real disturbance is present the success of our treatment will depend on the extent to which we can remove or check the disturbance, and thus leave the ventricle free and unhampered to carry on its work.

If the site of origin of these disturbances of rate and rhythm be inquired into, it will be found that the vast majority arise in the supra-ventricular tissues—that is, those parts of the heart which lie above the purely contractile tissues of the right and left ventricles. This applies whether the disturbance arises from the heart itself or is produced by outside causes through the blood-stream or nerves. In this sense it may be said that the ventricular muscle is protected to a great extent from disturbing factors which fall first of all on the supra-ventricular tissues. It follows, therefore, that disturbances in the rate and rhythm of the ventricles are always secondary to and dependent on some form of disturbance in the supra-ventricular tissues. These tissues are collectively described as the conducting tissues of the heart, and include from start to finish the sino-auricular (*s.a.*) node, the auricles, the auriculo-ventricular (*a.v.*) node, and the *a.v.* bundle. They are called the conducting tissues because their function is to conduct the impulse which starts the heart beat at the *s.a.* node through the walls of the auricles (which are also feebly contractile) to the *a.v.* node and thence through the *a.v.* bundle to the contractile tissues of the ventricles. It is on the regular and orderly functioning of these conducting areas of the heart that the ventricles depend for their efficient action. It is as a result of some disorder or disturbance in the conducting areas that symptoms of cardiac failure appear and medical advice is sought in a very large proportion of all cardiac cases.

The conducting tissues are of great importance also from the fact that it is on them that the vagus, the chief controlling nerve of the heart, acts. If the vagus nerve be stimulated there follows a depression of the *s.a.* node so that the heart rate is slowed, and also a depression of the conducting areas so that the *a.v.* interval is lengthened. As the commonest cause of heart weakness and failure is over-activity or over-excitability of some part of the conducting tissues, it would be of the greatest advantage to us clinically if we had some drug whose effects would tell on the conducting tissues more especially, by enforcing the controlling action of the vagus nerve. Such a drug we possess in digitalis.

Failure of Compensation.

The signs and symptoms of failure of compensation are well known, but what is "failure of compensation," and on what does it depend? We shall all agree that there is a failure on the part of a heart already diseased to carry on the circulation successfully or as successfully as the lesions present had previously allowed. You will find it stated that an increased cardiac rate is one of the commonest evidences of cardiac insufficiency or failure of compensation. You will also find it stated that the ventricular action is so feeble that the heart never empties itself, and as compensation for this the rate is increased. Both of these statements are misleading. An increased cardiac (ventricular) rate is not an evidence of failure of compensation, but it is the commonest cause. When ventricular action is feeble an increase in rate will never strengthen it, for one finds that pari passu with the increase of rate the ventricular contractions become feebler and less effective. There is no clinical evidence that ventricular action is ever improved by increasing the rate of the heart. In the case of healthy hearts muscular effort on the part of the body generally, as in running, will at once lead to increase of rate, which ensures a rapid flow of blood through the tissues. It is this rapid flow of blood which enables the muscular activity to go on, but a time comes when the heart can stand the rapid rate no longer and must have rest. In the case of diseased hearts we find this inability to maintain a rapid rate successfully much more pronounced, so that no attempt is ever made in therapeutics to improve the cardiac power by increasing its rate above the normal.

The term "failure of compensation" implies that the compensatory changes which the heart has brought about by its own inherent powers have broken down, but is this really so? Take the familiar example of auricular fibrillation with a sudden onset which is the commonest type of failure of compensation. Here the patient passes quickly from a condition of comparative comfort into one of the greatest cardiac distress. This development is to be explained not as due to any change in the compensatory apparatus, but as due to the onset of a new rhythm with a marked increase of rate, which has thrown the heart out of working order. The compensatory changes are ready to resume their function as soon as the disturbing factor has been removed or its effects have been controlled by slowing of the ventricular rate. The same applies in the majority of cases we meet with in practice, and the question of compensatory failure so called may be eliminated from our investigation into the therapeutic uses of digitalis. In a minority of the cases we are called on to treat there is a failure of compensation when the muscular power of the ventricles finally gives out, without other disturbance, but this is not the class of case in which we can hopefully use digitalis, or anything else.

Failure of compensation is a misleading term in the majority of cases, but it has established itself and we must accept it and explain as clearly as possible the condition referred to. I should describe that condition as the development of symptoms of cardiac failure owing to a disturbance in the conducting tissues causing a change in the rate or the rhythm of the heart, and accompanied by a rapid ventricular rate. In some cases there may be a disturbance of the rhythm of the heart without any material change in the rate of the ventricles, and with possibly an actual slowing of the ventricular rate. In such cases we do not find that digitalis as a therapeutic agent is of any use. The value of digitalis is shown in those cases in which there is a disturbance in the conducting tissues causing a rapid ventricular rate. When we say that digitalis is beneficial in cases of failure of compensation it will be found that the cause of the failure is the disturbance just described.

MODE OF ACTION OF DIGITALIS.

It will be admitted that as practitioners of medicine it is very desirable to know in the case of any particular drug what its mode of action is, what type of case is suitable for its use, and what the exact results are which may be looked for. As regards digitalis, this has now been achieved. On the other hand, it is not desirable that we should go on using this drug in unsuitable cases or indiscriminately in all cases of heart disease merely because of some physiological or pharmacological experiments, or because of dogmatic and text-book teaching. I shall try to give you a practical outline of the uses of digitalis in clinical medicine, dealing with the mode of its action in therapeutic doses, the class of case in which it may be expected to prove useful, and also the class of case in which no benefit may be expected.

I would ask you first of all to dismiss from your minds any impression you may have gathered that digitalis is a great cardiac tonic which directly augments the tonicity or the contractile power of the heart. Neither digitalis nor any other drug has been shown to have any such action in clinical work. One can go further and say as regards digitalis that it has not been proved to have any direct therapeutic action on the heart muscle. On the other hand, there is an accumulation of evidence, clinical and otherwise, amounting to proof, that digitalis stimulates the vagus, the great controlling nerve of the heart, probably by acting on the vagal centre, and more especially the vago-cardiac centre. The result of stimulation of the vagus is a depression or inhibition of the activity of the supra-ventricular tissues we have described as conducting. This result is manifested by a slower production and discharge of impulses at the sino-auricular node, the pacemaker of the heart, and by a slower rate of progress of the impulse through the conducting tissues, so that the *a.–v.* interval is lengthened. Thus the final and important result of stimulation of the vagus is a slowing of the ventricular rate. This action is much more pronounced in hearts with an abnormally rapid rate than in hearts with a normal rate.

If we approach the question from the clinical side we find in cases suitable for digitalis that there is a rapid ventricular rate, and our object is to produce its slowing. In order to stimulate the vagus it is no use giving small doses, such as five drops of tincture of digitalis three times a day. That may lead to a gentle but ineffective stimulation of the vagus, but what we desire is to get the vagus thoroughly gripped by digitalis so that its full controlling powers are brought out. Full doses of digitalis are called for if good therapeutic results are to follow. Assuming that these have been given, we shall find the vagus inhibition will fall first on the *s.a.* node, and will limit the rate of production and discharge of stimuli. The rate of the heart beat having been reduced at its source, fewer stimuli reach the ventricles, and the result is a reduced rate of the ventricular contractions. In many cases of disease the *s.a.* node is not in action as the heart beat starts elsewhere—for example, in auricular flutter and fibrillation. In these cases the vagus will act on some other part of the conducting tissues, especially the *a.v.* node and bundle, and will diminish the rate of conduction through those tissues. The result will be the same, a slowing of the rate of the ventricle owing to the blocking of many of the stimuli which had been reaching it. This, then, is the action of digitalis which we apply therapeutically. Digitalis is given in full doses, it stimulates the inhibitory action of the vagus, which leads to a depression of the over-activity in the supra-ventricular tissues, and results in a slowing of the ventricular rate. You may take it as an aphorism—no slowing of the ventricular rate, no benefit from digitalis.

CLASS OF CASE WHERE DIGITALIS MAY PROVE USEFUL.

Reference has already been made to the absence of any specific drug treatment in acute and chronic heart diseases. In the treatment of disease of the pericardium, the myocardium, and the endocardium, as such, digitalis plays no part. Far less is it to be regarded as the routine treatment on the detection of a systolic murmur, a dilated heart, or a re-duplicated second sound—as some of us are old enough to have seen done. The class of case suitable may be described as that in which certain disturbances have arisen in the supra-ventricular tissues and have led to an increase in the ventricular rate. The normal mechanism of the heart beat has been thrown out of order, it may be by a disturbance of the rate or a disturbance of the rhythm, but if the result is an increase of the ventricular rate with signs of cardiac failure, then digitalis is called for. I do not state that all cases falling under this category will benefit from digitalis, or that they will show that marked slowing of the ventricular rate which is our aim and object. On the contrary, we shall find later that certain conditions may modify or prevent the beneficial action of digitalis, and that many cases which appear suitable fail entirely to react to digitalis, probably owing to the presence of unknown factors. There are still many problems left about the action of digitalis for our younger colleagues to work at and solve. In the past great emphasis was laid on valvular lesions, and special indications were given as to the line of treatment of the various lesions with digitalis. In the use of digitalis we now pay no attention to the valvular lesion, but deal only with the disturbance present in the heart. Digitalis is equally serviceable whether the valvular lesion be mitral regurgitation or mitral stenosis or aortic regurgitation or a combination of these, provided that for other reasons it is called for. No variety of heart disease, per se, is an indication for the use of digitalis, but in every form of heart disease accompanied by a rapid ventricular action digitalis may be useful.

A good deal of discussion has taken place as to whether digitalis is as effective in cases of rapid and regular heart action as it is in cases of rapid irregular action. The great example of the latter is auricular fibrillation, and the reputation of digitalis is based on its beneficial action in that condition. The teaching of Mackenzie on that subject is now universally accepted, and he has shown that the benefits to be obtained from digitalis are more strikingly seen and more hopefully expected in cases of auricular fibrillation associated with rheumatic disease of the heart than in any other condition. It is generally agreed that the beneficial effect of digitalis in this connexion is by the slowing of the ventricular rate through the inhibitory action of the vagus acting on the *a.v.* node and bundle and the induction of partial heart-block. In the case of auricular flutter we have a condition in which the disturbance in the auricles leads to a great increase of rate but a regular action. The ventricular result is always an increase of rate, but the contractions of the ventricle may be regular or irregular. In this condition, also, the results of digitalis treatment are very satisfactory. In these two conditions the rhythm of the heart beat has been disturbed because the starting-point is always ectopic, as Lewis calls it, that is to say, at some point away from the normal pacemaker the *s.a.* node. In another class of case the rhythm of the heart is normal, but the rate is greatly increased although perfectly regular. I have recorded a series of cases in early life, and Dr. Henry Christian has recorded others in later life, in which great benefit was obtained from digitalis in diseased hearts with a rapid and regular action. In such cases the presumption is, and tracings confirm it, that the inhibitory action of the vagus tells on the *s.a.* node and depresses its activity. So that when other conditions are favourable the presence of a regular cardiac action as opposed to an irregular one should not be considered a contra-indication to the employment of digitalis.

Cases of chronic heart disease as met with in practice may be divided into two classes, those which are the result of rheumatic infection and those which are not. The second class comprises all the chronic degenerative changes met with in advancing years which are late infective, or toxic, or senile in origin. If we take the cases in which digitalis appears to be called for, it will be found—as generally agreed—that the beneficial effects are more strikingly manifested in those with a rheumatic origin than in those where other forms of degenerative change are present. Why this is so is somewhat difficult of explanation. If the views previously expressed be accepted, we do not expect digitalis to act directly on the heart but only on the vagus nerve. There is no suggestion that the vagus itself has been specially affected by the rheumatic infection or by chronic degenerative changes of any other kind. It would appear, therefore, that in rheumatic cases the cardiac tissues, and more especially the supra-ventricular tissues, have been so altered by the rheumatic infection as to make them more susceptible to the inhibitory action of the vagus nerve when stimulated by digitalis. If we take the cases in these two classes in which digitalis has failed to do good, although pushed to its full effect on the vagus and under conditions when the cardiac symptoms seemed favourable, it will be found that the majority of these failures occur in the non-rheumatic cases.

If we say that digitalis is suitable in cases of disturbances of the cardiac action, which occur in a diseased heart, and which are manifested by a continuously rapid rate of the ventricles, and a weakening of the ventricular contractions, we sum up the cases in which digitalis has been found to be and proved to be of great service. If this limitation be accepted you will see that a great number of conditions are ruled out. By specifying a diseased heart we at once rule out all the functional disorders of the heart, and the diseases of an extra-cardiac nature, which react on the heart. By specifying a continuously rapid rate, we exclude all forms of heart disease associated with a slow pulse, such as heart-block. We also exclude cases in which the heart-rate is normal, for it is my experience that digitalis cannot be hopefully or beneficially used in such cases. Paroxysmal tachycardia is also excluded, and rightly, because digitalis will do good only if and when the paroxysms are changed into a prolonged and continuous tachycardia. By specifying weakened and inefficient contractions of the ventricles we exclude those cases in which a diseased heart is merely quickened in its rate—as it is on any call for extra effort or under nervous excitement—without any other effect on its efficiency. It is only when the rapid rate leads to the production of some symptoms on the part of the patient, an evidence that the circulation is impaired, that digitalis is called for and will prove really serviceable. Some may think that I have reduced the use of digitalis to a very small and select number of cases, but if you analyse your own cases in which digitalis has had a demonstrably beneficial effect, you will probably find that they fall into the category defined above as suitable for digitalis.

Certain Factors which Interfere with the Action of Digitalis.

It must not be assumed that in all cases of weak and rapid cardiac action digitalis is called for. It should not be made a routine practice to give digitalis in all such cases. The results will often be disappointing, and further, the patient will often be needlessly alarmed when he discovers that digitalis has been given. For the public are now firmly convinced that the use of digitalis implies the presence of heart disease, and that heart disease means a liability to drop dead at any moment. In cases of chronic alcoholic poisoning one frequently meets with certain symptoms suggestive of cardiac failure such as an enlarged liver, a rapid heart, and a feeble pulse. To give digitalis in such a condition of poisoning is useless and it needlessly alarms the patient.

The chief factor which interferes with the action of digitalis is a condition of active toxæmia. In Graves's disease we have a cardiac disturbance which would appear suitable for digitalis therapy—namely, a persistently rapid heart. If the disease is active—that is to say, if the system is being poisoned by an excessive amount of thyroid secretion—it will be found that the use of digitalis in full doses has no effect. When the active symptoms have subsided and the toxæmic condition has gone, the heart may have been damaged, as shown by the presence of auricular fibrillation or a rapid rate. At this stage digitalis may be given and, as a rule, with great benefit. In the case of other poisons, such as alcohol in excess, the same results will follow, and it is useless to give digitalis until all signs of active toxæmia have subsided.

It is now generally accepted that in acute pyrexial conditions digitalis does not slow the heart and that no benefit follows its use. It does not seem to matter whether the pyrexia is the result of some local inflammation or of some general infection. There are probably several reasons for this failure to obtain benefit from digitalis. The raised temperature of the blood may stimulate the *s.a.* node and lead to an increased rate, or the stimulation of the sympathetic nervous system may be so great as to overpower the vagus control. There are often toxic elements in the blood-stream which may directly stimulate the *s.a.* node to such an extent that nervous control is lost. Be the reason what it may, we have much evidence of this uselessness of digitalis during pyrexial conditions and we have no evidence to the contrary. It would appear that during pyrexial disease digitalis does exert its influence on the vagus nerve, but that no effect is produced on the heart rate because a more powerful stimulant is at the time acting on the heart. I have evidence to show that if digitalis has been given in full doses during acute rheumatic disease with pyrexia, and *if the temperature falls*, we may get such a marked slowing of the pulse as to show clearly that the inhibitory action of the vagus had been brought into action. As unfortunately we are not able usually to fix definitely the duration of a pyrexial illness, we cannot employ digitalis with any confidence, although those who employ digitalis as a routine treatment in pneumonia have some support for their action. Even in a disease of fairly fixed duration like lobar pneumonia, I do not know of any series of cases showing definite evidence of benefit from digitalis. Repeated disappointments have led many to give up using digitalis in pneumonia.

If we contrast the two classes of cases, those in which digitalis may be expected to do good and those in which it may not, we shall find :—

1. That digitalis is serviceable when the disturbance in the heart rate arises in the cardiac tissues, and that it is not useful when the disturbance reaches the heart from without—i.e., through the blood-stream or the nervous system.

2. That the therapeutic benefits of digitalis are obtained when the later manifestations of heart disease have appeared and not in the acute inflammatory or actively toxæmic stages.

CLINICAL INDICATIONS FOR DIGITALIS.

What are the clinical indications for the use of digitalis ? Some are content to rely on an examination of the heart and pulse. There may be present some valvular murmurs, or alterations in the heart sounds, or changes in the size of the heart, but these are of no value in estimating the efficiency of the cardiac power. In the later stages of disease with which we are dealing such changes have probably existed for a long time. So that an examination of the heart can never by itself be made the basis of our treatment. A weak pulse will not decide the matter because no one ever felt a strong pulse when the heart was beating 140 times a minute. Every heart beat at that rate is weak and the pulse is correspondingly affected. The sphygmomanometer gives an appearance of scientific accuracy to a medical examination, but it is useless as a guide to the need for digitalis. In the typical case of auricular fibrillation there is no constant arterial pressure, for it becomes as irregular as the action of the ventricles. While we should carefully examine heart and pulse for comparison later on with the conditions after treatment, we must look elsewhere for the indications as to immediate treatment. Before treating the patient for cardiac failure we must have evidence that there is cardiac failure. Such evidence is to be obtained solely from the symptoms complained of by the patient and the signs in his tissues that the circulation is defective. In other words, a patient who requires digitalis has definite symptoms of which he is conscious and which are probably distressing him, and sooner or later he shows the presence of œdema in the lungs or extremities, engorgement of the liver, and congestion of the kidneys as manifested by a scanty amount of urine. The outstanding symptom is breathlessness, noticed at first on slight exertion, and increasing by degrees to breathlessness even at rest, and orthopnœa. When breathlessness is present, with or without some œdematous effusion, and when the heart on examination is found to be the organ at fault, and when the ventricular rate is rapid—that is the time to give digitalis. In suitable cases there is no haphazard action of digitalis. The doctor, however sceptical he may be about drugs, can see the good effect produced, and what is more, the patient, however sceptical he may be, is soon conscious of the relief which has followed.

DOSAGE AND ADMINISTRATION.

Digitalis is a powerful drug and may be dangerous if unskilfully used. Perhaps that is why text-books and pharmacopœias fail to indicate the full efficiency of digitalis by playing for safety with small doses. There is no doubt that the real merits of digitalis can only be learned by experience in dealing with many and different classes of cases. There are many points in common between digitalis and alcohol. Some call alcohol a tonic and others call it a poison. Both are right—it is a question of dosage. Some call digitalis a tonic, others call it a poisonous drug. Both are right—it is a question of dosage. Some give alcohol for its sedative qualities, others give it as a stimulant—and the same applies to digitalis. Both views are correct and both results can be obtained in suitable cases. The controversies over the use of alcohol are interminable, whereas as regards digitalis we have much more precise knowledge and much more agreement.

The first point to be remembered is that digitalis has to be given in such amount as to produce the required effect, which is slowing of the ventricular rate. This represents a considerable amount of digitalis and there may follow certain toxic symptoms. Our aim and object is to produce the maximum therapeutic effect with the minimum toxic effect. Some are so anxious to avoid the latter that they never succeed in obtaining the former. The minor toxic effects do not harm the patient, and are really helpful often as an indication when to stop the drug. It is only when they are ignored and the drug is continued that the really serious toxic effects on the heart and other parts of the body will be produced. Speaking generally, we find that for an ordinary effective course of digitalis from 4 to 6 drachms of a standardised tincture of digitalis will be required. The amount usually ordered per diem is from 1 to 1½ drachms, according to the urgency of the patient's symptoms. When 3 drachms in all have been taken, the amount is fixed at 1 drachm per diem until the heart rate is slowed to 80 or until vomiting or headache or diarrhœa supervenes. Very often the two occurrences are simultaneous—that is to say, nausea comes on and the heart rate is found to be distinctly slowed. You will find that it is the cumulative effect of a considerable amount of digitalis given in a short space of time which tells on the vagus and slows the heart. If we give tincture of digitalis in 5 or 10 minim doses thrice daily we may in time give a much larger amount of digitalis without producing an effect on the heart or anything else, because the destruction or excretion of digitalis is so complete. In practice, therefore, it is now customary to give from 4 to 6 drachms of tincture of digitalis spread over from four to six days. More recently massive doses of the tincture have been tried, 3 to 4 drachms in 24 hours, and good results have been obtained more quickly than by the slower method. While this treatment by massive doses may be useful in urgent cases—that is to say, when the patient's distress is very great—it has this disadvantage, that some patients are intolerant of digitalis and develop toxic symptoms on small amounts. If such a patient is treated with massive doses, the toxic phenomena ensuing may seriously interfere with the prospect of recovery. For ordinary cases which appear to be suitable for digitalis therapy if 6 drachms have been given without producing nausea or slowing of the heart rate, it is advisable to stop the drug for 24 or 48 hours. If no change takes place during this time the drug may then be resumed for a few days in doses of 45 minims of the tincture daily. But given a standardised preparation of digitalis or of digitalin, one usually finds a definite result when the amount taken corresponds to 6 drachms of the tincture of digitalis. If we watch the patient as regards functional effects on the heart rate or the onset of nausea and vomiting, we are not likely to meet with any of the seriously toxic effects, such as prolonged vomiting and diarrhœa, or on the heart itself, coupled beats and heart-block. Finally, it may be noted that children benefit as much as adults from digitalis, but they require much larger doses in proportion to their size. A child of 10 or 12 years with a chronic rheumatic heart and rapid rate, and failure of the circulation, will take from 45 to 60 drops of tincture of digitalis daily, or its equivalent, with great benefit if administered under the precautions given above for adults.

NOTES ON THE

EPIDEMIOLOGY OF MALARIA IN SOUTH-EAST RUSSIA.

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THE present widespread epidemic of malaria in South Russia is of deep interest both from a medical and a political point of view. Over enormous tracts of land, where subtertian malaria was unknown and tertian malaria rare, these diseases are now almost pandemic—up to 90 per cent of the population being affected in many areas. At the time of the famine in the Volga valley thousands of refugees travelled 1500 to 2000 miles to Turkestan where wheat was obtainable (November, 1921–March, 1922). On the return of these peasants after the harvest of 1922 malaria broke out in pandemic form throughout South-East Russia. The epidemic spread steadily throughout the winter, with the thermometer varying from 20° C. to 30° C. below zero from November until March.

Factors Favouring Spread of the Disease.

The spread of the disease during the extreme cold appeared to be due to the fact that the drinking-water butt, combined with the almost tropical heat of the log-houses of the peasants, offered an ideal breeding place for anopheles remaining in the huts from the summer. During the intense cold of winter both larvæ (in the water-butts) and adult anopheles (in dark corners) could be readily found in a large proportion of the peasants' houses adding to the large number of varied species of insects always existing in these places. A marked increase in the number of mosquitoes in a house occurs after a bundle of firewood has been brought in from the marshes. The firewood is covered deeply in snow; when brought into the log-huts it is dripping wet, and is stacked in a corner of the building, where it remains wet for some days owing to the high degree of water saturation of the air in the almost hermetically sealed houses. From the regularity with which an increase of mosquitoes is associated with the arrival of firewood in a house, and the excellent breeding conditions formed by the wet wood bundles in the hot houses, it appears possible that the eggs of certain mosquitoes laid in the cracks of the trees and dead wood in the late summer, and protected by the snow retain their vitality in spite of the intense cold (−30° C.). I have no evidence that this applies to anopheles.

Extent and Distribution of Epidemic.

The extent of the newly affected districts of Russia is limited by Nijni-Novgorod and Moscow in the north, by the western frontier of Russia in the west, and by the Black Sea in the south. This includes the whole of the Ukraine, Georgia, and the Caucasian provinces, the Black Sea provinces, and the whole of the south of the Volga valley. In the south-east the affected areas become continuous with the old endemic centres in Turkestan. The general incidence figures given by the Russian authorities are probably very inaccurate, as there exists little or no machinery for the collection of the crudest statistics. In practice, notification of births and deaths is only carried out in some of the larger towns and the notification of infectious and other diseases is not compulsory. The accuracy of statistics is further impaired by the very small percentage of the infected who see a doctor, owing to lack of transport (due to the death of almost all horses during the famine) and to the long distances (which are greatly increased by the small number of surviving doctors), added to the fact that the shortage of quinine and the large number of cases make it improbable that the patient will receive a dose of quinine after perhaps two or three days' journey. In this connexion it must be remembered that the great majority of the Russian population consists of country dwellers. There is no doubt, however, that a widespread epidemic of malaria exists in South Russia, with a very high rate of incidence amongst the population. The whole of the figures given below were obtained by English workers in the laboratories and clinics of the mission, and are largely based on 14,000 examinations in the unit's laboratory at Buzuluk during the six months, November, 1922–May, 1923.

The district in which I had an opportunity of noting some features of the epidemic was that of Buzuluk Ooyezd—a district approximately the size of Wales and with a mixed population of Tartars, Russians, Cossacks, and Khirghiz, totalling approximately 400,000. The population is widely scattered, the villages in some districts being 50 miles apart and 120 miles from the railway. The district includes forest (one-third), rivers, marshes, and steppeland, and has a maximum temperature of 102° F. in the summer and −30° C. in the winter. In this district the population was suffering from post-famine debility (one-half of the original population had died from famine and typhus fever), scorbutic diseases, nephritis, and dysentery; grass was still (in the winter, 1922–23) being mixed with rye-flour to make bread. Malaria first appeared in this district in October, 1922; and Chart 1 gives the number of persons applying for treatment in the Buzuluk town clinic (population 16,000 approx.) in the first six months. By March, 1923, between 60 per cent. and 70 per cent. of the whole population were suffering from the disease, the incidence being between 90 per cent. and 100 per cent. in most of the districts.

Types of Malaria Found.

Chart 2 shows the percentage of each type of malaria. It is to be noted that whilst subtertian malaria formed 35 per cent. of the total number of positives in November, 1922—i.e., immediately after the introduction of the disease to the district—both this type and quartan steadily fell until February, 1923, and have remained low (2 per cent. to 4 per cent.). Tertian malaria, on the other hand, has risen steadily in incidence, suggesting that this is the type that will remain permanently. This chart should be read in conjunction with Chart 1. Clinically, the cases presented all the characters of very severe malaria. During the winter, when the percentage of subtertian cases was at its height, there was a high mortality for which figures were unobtainable. It is interesting to note that of members of the unit, one who had been in perfect health throughout developed subtertian malaria three weeks after leaving Russia, the blood showing a heavy infection with small rings and crescents. This attack of malaria, which was due to a latent infection, was precipitated by an attack of relapsing fever and developed immediately after the latter.

Distribution of Quinine.

It was obvious that any efforts at hydro-technical control were useless in view of the enormous areas affected (all Southern Russia), the need of the water for irrigation, the indolent nature of the Russians, and the fact that most of the population were unfit to work. It was decided, therefore, to concentrate on a widespread distribution of quinine, this action being justified by the fact that the pandemic nature of the outbreak was largely due to the physical condition of the population—owing to the disease peasants could not plough, were unable to collect wood for warmth, to look after their animals, or even to carry the rations issued them by the relief unit. A prolonged quinine treatment enabled them to break the vicious circle of physical debility and malarial infection, and, moreover, reduced very considerably the number of human reservoirs of the disease.

The quinine was in the first instance issued to hospitals and practitioners. This proved unsatisfactory, as quinine became extremely valuable with the increase of the epidemic. In the case of practitioners the number of patients applying for treatment was so great that uselessly small doses of quinine were given to each patient, which resulted only in temporary relief. In hospitals the quinine was sold by the attendants or the patient himself, the latter hiding quinine under the pillows of his bed and accumulating a considerable quantity, after which he discharged himself and sold the quinine in the bazaar at 1*s.* (1,000,000 roubles) for 5 gr. Much quinine was wasted by its issue to other cases than malaria by reason of the absence of laboratory control. A bacteriological laboratory was therefore ordered from England in 1922. A series of educated Russians—mostly university students—were trained by the permanent English worker in the diagnosis of malaria, the administration of a clinic, and the issuing of quinine, a course lasting three months. As each student qualified he was sent out into the district to open a clinic on the lines of that in which he had been himself trained.

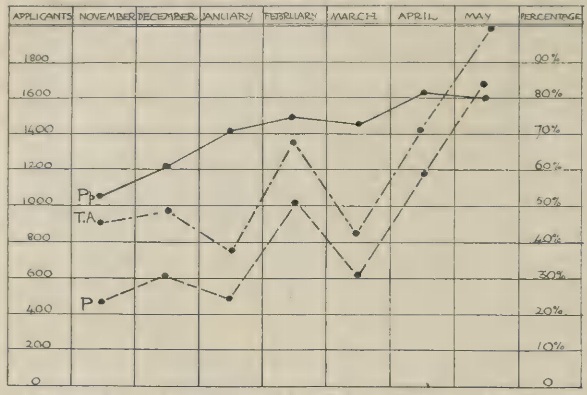

CHART 1

SHOWING TOTAL NUMBER OF APPLICANTS AND PERCENTAGE FOUND MICROSCOPICALLY POSITIVE DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923

Pp, percentage of positives; TA, total applicants; P, positives.

The blood of every patient presenting himself at one of the clinics was examined microscopically, three examinations during fever being done before a case was declared negative. Positive cases were only treated upon a promise to continue to attend the clinic for two months in order to get a complete course. Few failed to keep the promise, as such cases were refused treatment at a later date should the disease recur. The fear of the disease was so deep, and the incapacity for agricultural work that it produced so great, that very few ran the risk of not being able to have treatment; practically, therefore, it was possible to obtain a satisfactorily long quinine treatment. A record card of each patient showed what attendances he had made and how many he had still to make. All quinine was actually swallowed at the clinic. The quinine given was a solution of the bisulphate in water and adults received 20 gr. as a single dose each day for a week and 15 gr. as a single dose twice a week for two months, the dose being varied proportionally for children. Though the patients varied from babies a few months old to old people no catastrophe or ill-effect has resulted from the large doses employed for ambulatory cases. The efficacy of this treatment is shown by the number of relapses (including reinfections) amongst patients (Chart 3).

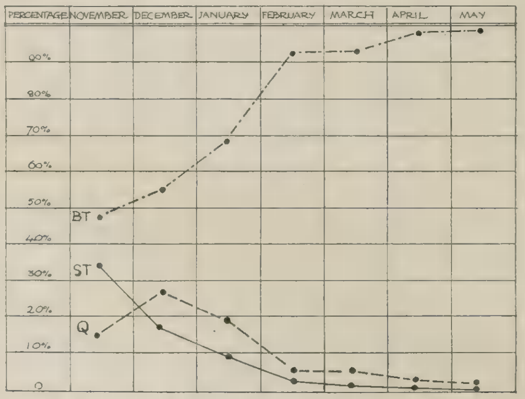

CHART 2

SHOWING RELATIVE INCIDENCE OF TYPES OF MALARIA DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923

BT, benign tertian; ST, subtertian; Q, quartan.

The facts that the quinine issued from the unit clinics was the only quinine existing in the district, that it was consequently impossible for patients who relapsed to go elsewhere, and that each clinic dealt with a population isolated by distance, gives the relapse figure some value, in estimating the importance of the prolonged treatment. In March, amongst the 1500 cases treated, the number of old patients who had relapsed was 45. The increase to 180 in April is due to the re-infections during the thaw floods—the small number of re-infections being determined by the large proportion of the population undergoing the two months' treatment and having quinine in their blood. In a total of 5738 persons treated in the six months there were only 380 relapses and re-infections.

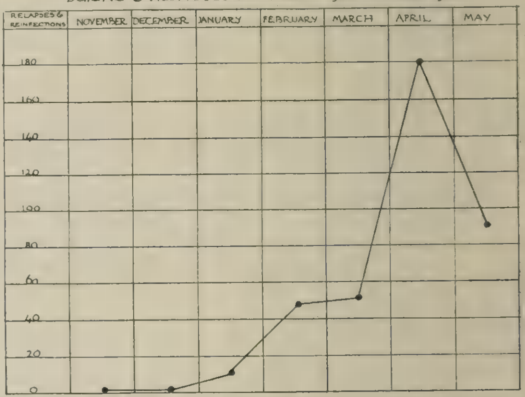

CHART 3

SHOWING NUMBER OF RELAPSES INCLUDING REINFECTIONS DURING 6 MONTHS NOVEMBER 1922 TO MAY 1923

Probable Effect of the Epidemic upon South Russia.

The effect of the epidemic on the future of Russia will probably prove to be greater than that of the Revolution. From a healthy country inhabited by a virile, energetic peasant population, and entirely non-malarial throughout its greater extent, the whole of South Russia is now probably the most malarial country in the world. The hopelessness of eradicating the mosquito in view of the enormous areas concerned, combined with the easy-going nature of the Russian and the low standard of education of the majority, make it probable that a great degeneration, comparable with the effect of malaria on ancient Greece, will in the next 20 years alter the type of the whole population of these Cossack districts and will threaten to overwhelm the rest of Russia. Had it been possible, as it was practicable, to quarantine all refugees arriving from Turkestan (as was done with cases of suspected cholera and typhus), the infection of the mosquito could have been prevented to a large extent, but it was impossible to persuade the authorities to allow the formation of a quarantine camp, where refugees could have been treated with quinine if found to be suffering from malaria on arrival.

The chief points of interest in the epidemic as I saw it may be enumerated as follows: 1. The rapid spread of the epidemic in the extremely cold winter months in Russia. 2. The mode of spread through the means of the infected water-butts of the peasants' houses. 3. The fact that subtertian malaria reached its maximum in November, December, and January and afterwards almost disappeared. 4. The monthly alteration in the quartan incidence (Chart 2). 5. The extreme susceptibility of a population weakened by famine and disease. 6. The practical difficulties met with in the uncontrolled quinine distribution in a malarial country and the need for constant laboratory control. 7. The small number of relapses (including re-infections) after prolonged quinine treatment. 8. The necessity for seeing the quinine actually swallowed at the clinics. 9. The absence of risk in the routine high dosage of quinine in ambulatory cases. 10. The pandemic nature of the outbreak. An average for all our districts showed between 60 per cent. and 70 per cent. of the population to be infected and in most of the districts 90 per cent. and 100 per cent. The malarial cases showed an average of 57 per cent. of all out-patient cases at hospitals.

RHEUMATIC CARDITIS:

SOME PRINCIPLES GOVERNING ITS PREVENTION AND EARLY TREATMENT.

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ALTHOUGH the general public has to a large extent learnt to appreciate the modern clinical conception of infective disease, and has in consequence been roused to considerable efforts in combating tuberculosis and venereal disease, it is nevertheless not much better informed with regard to acute rheumatism than it was 100 years ago. The idea of a "rheum," causing a painful lodgment in the various parts of the body where it came to rest, is practically identical with the modern lay conception of constitutional rheumatism, and though it is nearly 100 years since Scudamore and Bouillard associated cardiac lesions with rheumatism, even a well-educated man of to-day, unless he has had personal experience of the disease, is usually unaware of that association.

Yet to the medical man the disease is daily manifest in patients of all ages. Osler alludes to the "long arm" of rheumatism, in ascribing to it a large proportion of the 50,000 annual deaths from heart disease in this country; and recent figures are still more emphatic. Langmead[1] states that in the London County Council schools there is actually more rheumatism than tuberculosis, and that in the special schools for physically defective children one-third of the cases are cardiac. In 1920 the statistics of the Invalid Children's Aid Association show that they had 996 cases of rheumatism, heart disease, and chorea in their charge, as compared with 1401 cases of all varieties of tuberculosis.

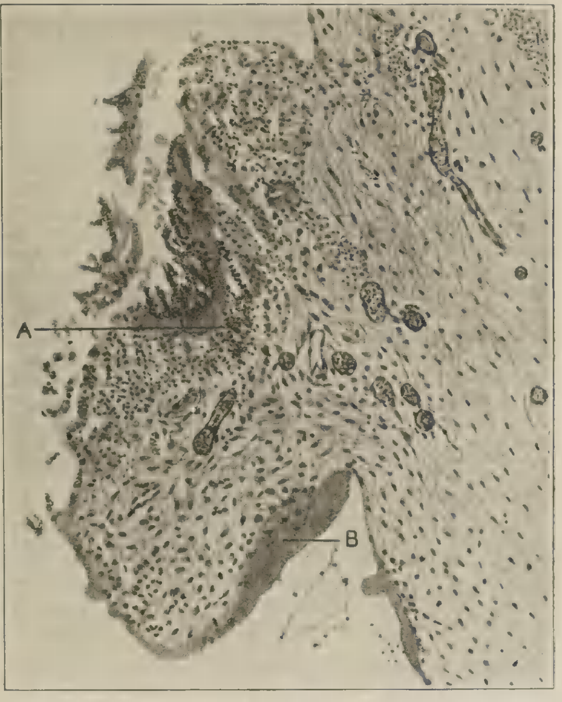
Literature of the Subject.

During the last century the teaching by Botrel that all chorea was of rheumatic origin, and the description of the rheumatic nodule by Hillier, were followed by Cheadle's conception of the "rheumatic state" in childhood and early adult life as an infective disease[2]—a conception which still holds the field. This conception was from the first strongly supported by the anti-rheumatic effects of sodium salicylate, and adequate doses of the drug at frequent intervals, in children as well as in adults, were insisted upon by Dr. David Lees[3] in his works upon rheumatic carditis. The work done under the stimulus of the chemical theory of the disease—which led Richardson to suppose that lactic acid, and Latham and Haig to suppose that uric acid, was the cause of rheumatic fever—needs only to be mentioned to show how completely such theories are rejected by the clinical thought of to-day, under the influence of the results of bacterial research.

But in spite of the discovery of numerous bacteria in immediate association with other clinical syndromes and lesions, those of acute rheumatism remain unassociated with any established causative organism. In 1900 and 1901, Poynton and Paine[4] claimed that they had demonstrated a diplococcus in 11 cases of acute rheumatism; this organism was found in the blood, pericardial fluid, granulations from the heart valves, nodules, heart wall, and throats of their subjects; inoculation of the organism into rabbits was found to produce arthritis, synovitis, early valvular murmurs, chorea, valvulitis, and pericarditis, and it was claimed to be the cause, not of all rheumatism, but "of all cases conforming to the usual type of the disease." These researches, though they still find considerable support—noticeably that of Beattie and Dixon[5]—have not been so fully confirmed that they command general acceptance. Horder[6] has remarked a general agreement that the vegetations of rheumatic endocarditis were, as judged by the present methods, bacteria-free, as also was the patient's blood-stream.

Rheumatic and Bacterial Lesions Contrasted.

Microscopic sections of the heart valve and musculature, of which the accompanying illustration is an example, taken from a case of infective (staphylococcal) endocarditis superimposed on a rheumatic history, illustrate the histological contrast between the rheumatic and the bacterial lesions, both types lying side by side in the same valve and in the muscle. The rheumatic lesions show lightly-stained fibrinous deposit and fibroblastic proliferation (Aschoff's nodes in the muscle); the infective endocardial lesion and a pyæmic abscess in the muscle show intense polymorphonuclear invasions of the areas.[7]



Section of mitral valve of a patient who died from secondary (staphylococcal) endocarditis. There was a long history of rheumatic heart disease. A, Area of intense hyperæmia and polymorphonuclear cell-exudation, the site of old rheumatic endocarditis. B, Area of rheumatic endocarditis, showing fibrinous deposit and fibroblastic proliferation beneath the endothelium. (From a drawing made by Dr. Joan Ross.)

However obvious, therefore, it is that acute rheumatism is infective in its origin, there is as yet no full warrant for saying that the infection is bacterial, and it is certainly remarkable, in contrast to many diseases with definite morbid lesions, that if there is a bacterium present in the very specific lesions of rheumatic disease, its identity has not been revealed by this time. Alternatives to a bacterial infection seem to be : (1) an exotoxin secreted by a bacterium lying elsewhere than in the specific lesions; (2) a filtrable virus. All these possibilities require further investigation; it is conceivable that there may be symbiosis in infection—e.g., that a streptococcus may be in close association with a filtrable virus.

General Position of the Disease To-day.

The existing uncertainty as to the cause of rheumatic diseases is undoubtedly an important factor underlying the very unsatisfactory state of affairs prevailing in the management of the disease to-day. One has only to imagine the discovery and bacteriology of a causative organism to be established to visualise the impetus which would be given to prevention, to diagnosis, to properly controlled treatment, and to the education of the public in the disease. There is no doubt that the established bacteriology of *B. tuberculosis* has been a great stimulus to the hygienic and clinical management of tuberculosis; the occurrence of the bacillus in milk and in sputum has had far-reaching effects in diagnosis and in the establishment of preventive measures; similarly the finding of the organism in the tonsils and decaying teeth of children has emphasised the desirability of tonsillectomy and of dental repair in thousands of cases of tuberculous adenitis of the neck. Yet, though there is no bacteriology in rheumatic corresponding to that in tuberculous disease, a great many facts are nevertheless so well established clinically as to justify systematic attempts to control this disease, similar to those already being made in the case of tuberculosis. In 1900 Caton[8] published a series of 86 cases illustrating the preventability of valvular disease of the heart by treatment of rheumatic endocarditis. In America the Society for the Prevention and Relief of Heart Disease has assumed an influential position, and in this country in 1923 Dr. Poynton[9] has brought forward considerable proposals, in which education of the public takes a prominent place, for the early detection of rheumatic symptoms and the consequent prevention of carditis. Finally, during a discussion opened by Dr. R. Miller at Portsmouth, the Council of the British Medical Association has been recommended to appoint a special committee to consider the best steps to be taken to combat the disease.[10]

Is Rheumatic Disease Infectious?

Newsholme,[11] in 1895, spoke of rheumatism as an acute infectious disease, having an epidemic prevalence in irregular periodicity. It may be asked whether it can be regarded as an infectious disease to-day. It is now generally admitted that phthisis is an infectious disease. W. St. Lawrence,[12] in New York, made an investigation into the incidence in families of rheumatism and tuberculosis. In 100 families, in each of which at least one member had suffered from a manifestation of acute rheumatism, he found the percentage of cases of actual rheumatism among all the exposed persons to be 14·8; a similar investigation in respect of tuberculous families, in each of which at least one member had active tuberculosis, revealed the percentage of actual cases among persons exposed to be 14·6, and he points out that "it is difficult to evade the proposition that rheumatic disease, and therefore cardiac disease, is communicable to a degree not generally imagined."

A London boy suffering from hitherto unrecognised and advanced heart disease was recently introduced into a seaside ward containing many rheumatic cardiac cases. He developed tonsillitis on the day of his admission, but by a mistake was not isolated for over 24 hours; a nurse shortly afterwards contracted tonsillitis, and for some time afterwards there were continual and irregular attacks of pyrexia and tonsillitis among the children in the ward. During this period one child with a rheumatic history contracted early mitral disease for the first time, after having tonsillitis; one case of severe adherent pericardium suffered from a severe recrudescence of the disease, and in two cases of old mitral disease relapse occurred, as indicated by recurrence of anæmia, tachycardia, and dilatation of the heart, and a return and intensification of murmurs which had been quite or nearly abolished—in one case by a long term of rest and treatment.

There is some evidence, therefore, that on grounds of public health alone the isolation of a child suffering from symptoms of rheumatic disease may be as desirable as that of a person suffering from phthisis.

Prophylaxis of Heart Disease in Rheumatic Cases.

Prophylaxis in the individual child may next be considered. W. St. Lawrence[13] made observations in 65 children who had had manifestations of rheumatic disease elsewhere than in the heart. These cases of "potential cardiac disease," as he has called them, were kept under observation and management for 4½ years; by the end of that time 25 per cent. of them had developed cardiac lesions of some sort; the remaining figure of 75 per cent. he regards as certain to fall, many of the children having had constant severe recurrence of rheumatic fever or chorea, and "such persons rarely failing to contract eventually a lesion in the heart"; he concludes that only when a child has remained free from recurrence of rheumatic manifestations for three years may recovery be regarded as fairly safe.

Further, of the 25 per cent. that developed heart lesions every one had had chorea, whereas of 100 children with cardiac lesions, who had not been under treatment, less than a quarter had had chorea at any time. St. Lawrence regards tonsillectomy as a most important factor in the management of these cases, and hence he concludes that this operation is highly effective in preventing recurrence in cases of acute rheumatism or rheumatic pains, but much less effective in preventing the recurrence of chorea. He draws a superficial analogy between active syphilis and parasyphilis on the one hand and rheumatic fever and chorea on the other, pointing out that the diseases in each case are much less amenable to treatment when the nervous system is implicated.

During the past year eight children who received during the summer of 1922 from 6 to 12 weeks' quiet life by the seaside have been observed. The hearts were all normal on their arrival at and departure from the seaside. They had all originally had chorea; in no case was tonsillectomy performed. They were re-examined after at least six months' life in London and daily school attendance, the results being as follows:—

3 cases	Heart normal; no more chorea.
1 case	Heart normal, but chorea recurred.
3 cases	Signs of myocarditis (excitable beat and dilatation); fresh chorea.
1 case	Aortic regurgitation.

Out of eight cases, therefore, who had had a short stay on the sea-coast, five showed recurrence of rheumatic symptoms.

Prevention of Relapse in Cases of Established Heart Disease.

Coming, thirdly, to the case of the child who has developed some degree of rheumatic cardiac disease, the time-element involved in the question of recovery is still more formidable. It has to be asked at the end of what length of time is a heart, which has once been infected, to be considered free from infection. In the absence of any kind of laboratory help, the answer is bound to be most uncertain, and even if a heart valve be freed from actual infection, it appears to become reinfected with disastrous ease in unfavourable cases. Cowan and Rennie[14] found that of 62 cases dying from chronic valvular disease at all times of life, no less than 39 showed acute endocarditis to be present at death—due, they consider, to reinfection of the valves previously injured by rheumatic endocarditis, while Poynton,[15] in recording a series of cases which seem to link up "simple" and "malignant" forms of endocarditis, suggests that such cases are those, not of superadded infection on a previously damaged valve, but in which organisms which have remained dormant in the tissues of the valve for years, have been reawakened to activity.

Children dying from heart disease may be said never to die from any merely mechanical defects inherent in the damaged valves; the cause of death is the toxic action of the rheumatic poison upon the essential part of the heart—the myocardium; and the observations of Cowan and Rennie make it appear likely that the same kind of toxic agent may often be present in cases dying from chronic valvular disease, leading to a poisoning of the already damaged myocardium. This hypothesis would account for the comparatively acute onset of symptoms leading to fatal heart failure, occurring in individuals who have for some years been known to suffer from valvular lesions without grave embarrassment, and a successful combating of the endocarditis would account for occasional recoveries in cases of heart failure where the outlook had seemed almost hopeless. In cases approximating to the "malignant" type, secondary organisms are perhaps deposited on the damaged valves or are brought by blood-vessels to the vascularised valves; but it is also to be regarded as possible that an infection having once occurred in a valve may be latent for years and then flare up again under suitable circumstances.

Thus there is at present no answer forthcoming to the question of the duration of valvular infection. But here again, in the absence of obvious constitutional signs of active disease—e.g., pyrexia and increasing pallor—clinical observation furnishes a principle of practical assistance. Just as an abnormal condition of the heart is indicated by abnormal physical signs, so where there is an observed change in the physical signs in progress, it is fair to assume that the lesion in the heart is itself undergoing change, and while such changes are in progress it is clear that the stage of activity of the disease has not been fully completed. And until that active stage is closed the heart should be given as much complete rest as possible, in the same way that a tuberculous hip is rested completely until all active signs of the disease have ceased.

Such a principle undoubtedly involves a long time element in the course of its effecting a recovery, for, as will be shown later, some of the changes in the physical signs take place very slowly. Moreover, when the cardiac condition has settled down to what seems a constant state, any increased amount of work put upon the heart must be very gradual, and, even when the patient is up and about, the question of possible relapse, from which even "potential" heart cases suffer so often, has to be considered. Such treatment should be undertaken under every kind of favourable circumstances possible; of these, fresh air, adequate warmth, good food, and a discriminating nursing supervision in order to ensure adequate physical and emotional restraint are the most important. The test of the efficiency of the treatment will be in the results as compared with the results of the usual forms of treatment available.

Results of Infection of the Heart.

In tabulating the results of infection of the heart the main difficulty lies in the very varying incidence of the infection upon the tissues of the heart. The myocardium, pericardium, and endocardium may be simultaneously or separately affected, and the endocardium may present single or multiple lesions. In the great majority of children suffering from chronic carditis there is a history of repeated attacks of chorea, rheumatism, or "growing pains," which clearly show that there is no system existing at present which is capable of preventing these recurring attacks. The usual history is that the children have gone into and out of hospitals several times, after which they are found to have a "weak heart." The special schools provided for such children by the London County Council constitute the best possible method of controlling these children's condition under the existing circumstances. Fresh air is abundant, medical supervision is regular, the children have a great deal of rest and are brought from and returned to their homes daily in special carriages.

Among 48 such children with a history of chronic rheumatic heart disease examined, the average time elapsed since the original infection was four years. the actual times varying from one to 11 years and under such circumstances the conditions of their hearts were found to be as follows:—

1. Normal hearts	5	cases.
2. Moderate muscular hypertrophy with systolic murmur	12	,,
3. Marked muscular hypertrophy with tumultuous heart-beat and rib-retraction	6	,,
4. Mitral obstruction (i.e., diastolic apical bruit) ..	12	,,
5. Mitral stenosis	7	,,
6. Aortic regurgitation	6	,,

These cases may be conveniently considered in three groups, according to whether the chief stress of the infection seems to have fallen upon the muscle, the mitral valve, or the aortic valve.

1. *Myocarditis.*—Myocarditis occurs in every case of rheumatic heart disease and is followed by some degree of cardiac dilatation and excitability of the heart beat. The nodes of Aschoff are so small as not probably to interfere with the conductivity of the muscle bundles of the heart, unless the condition becomes grossly aggravated by continually recurring infection. Slight dilatation of the heart is often accompanied by a soft systolic murmur, which is not necessarily endocardial in origin; in many cases under observation while recumbent, these systolic murmurs have been found to disappear completely. The cardiac dullness is estimated by palpation and percussion—especially by light percussion, as recommended by Dr. D. Lees.[3] The apex beat indicates the position of the lowest point of the left ventricle, and unless the chest is malformed—e.g., from rickety changes—is usually felt in the fifth left intercostal space, and the left border of the heart curves gradually inwards and upwards from this position. The right ventricle can sometimes be palpated through the epigastrium and diaphragm, but a definite enlargement of it can only be estimated when there is also hypertrophic change. The position of the border of the right auricle is of the greatest importance, for the auricles are more easily dilated than the ventricles, since their walls are thin.

General muscular hypertrophy of the heart, associated with a heaving and sometimes tumultuous beat is not necessarily associated with any valvular lesion. Possibly it may result from repeated attacks of myocarditis; much more probably it is the outcome of chronic adhesive pericarditis. In marked cases retraction of the ribs and intercostal spaces synchronous with the apex beat is a frequent feature, and indicates extensive bands of adhesion in the pericardium and anterior mediastinum. In some of these cases the hypertrophy seems to displace the apex beat markedly outwards and not at all downwards, as if the adherent bands opposed the cardiac enlargement taking place in the usual downward direction; the apex beat is then felt far out in the fifth space. But commonly, also, the shock of the systolic impulse imparted to the parietes makes any palpation, even of the apex beat, very difficult; a determination of the position of maximum audibility of the first sound is then a valuable help in determining the position of the apex beat. In the absence, however, of such confirmatory signs, and of a history of pericardial friction sounds or fluid, the existence of chronic adhesive pericarditis in a small degree can only be surmised in cases of moderate general muscular hypertrophy.

Whether there is any residual active myocarditis in a given case can only be determined apart from constitutional signs, by the principle indicated above—i.e., that where the abnormal cardiac signs are still changing, the stage of infective activity and tissue-response to infection cannot be said to have closed. Under such conditions the heart requires further observation at rest. Signs of favourable changes are: (*a*) Diminishing rapidity and excitability of the heart beat; (*b*) Diminishing cardiac dullness; (*c*) disappearance of the systolic murmur. Considerable time, moreover, may be needed before these changes are completed. In one case under observation it was five months before an excitable and rapidly beating heart settled down to a constant and deliberate rhythm; during this time the cardiac dullness diminished, and when the child was re-examined a year later, after seven months' living at home in London, the heart appeared normal in every respect. When, however, there is no longer any indication of change in the physical signs, it will probably be safe to allow the child to begin to get up. There is no point in keeping a child in bed because the heart is abnormal merely, but only when the abnormal condition is changing. Nevertheless, the process of getting up and about must be very gently graduated; at first the child should only be allowed to sit up for a quarter of an hour in the day, and the amount of activity is then gradually increased, careful watch being kept for any unfavourable reactions in the physical signs. As a result of rest and gradually promoted convalescence in seaside air for periods varying from four to eight months, seven cases, on re-examination after at least seven months' life in London, show the following results:—

No relapse; normal hearts	5 cases.
Relapse; fresh myocarditis	1 case.
Relapse; aortic regurgitation	1 ,,

2. *Mitral Disease.*—This is, of course, extremely common; 19 out of the 48 cases of chronic carditis had signs of it, while among the more recent cases under treatment at the seaside, 23 out of 44 rheumatic children, whether cardiac or not, showed definite signs of mitral disease. The significance of a systolic bruit is not easy to determine; musical and harsh murmurs are probably endocardial in origin, but apart from two of these in the first or chronic series, systolic bruits have not been considered as evidence of mitral disease.

Where the mitral valve is affected it is much easier than in simple myocarditis to appreciate the presence of a changing process in the lesion, owing to the characteristic nature of the auscultatory sounds. The most important and helpful murmur in mitral disease of rheumatic origin is a diastolic bruit, best heard just internal to the apex of the heart, and often only heard there. This murmur may occur at any time in diastole—just after the second sound, in mid-diastole, or as a presystolic murmur; the significant point about it is that it may disappear altogether if sufficient rest be allowed to the heart; on the other hand, it may persist indefinitely in severe cases—it was present in 10 of the 48 chronic cases examined—or, under more unfavourable conditions, may become converted into the crescendo presystolic murmur of mitral stenosis. Here it may be said that not every presystolic murmur, of course, is indicative of mitral stenosis, using that term in the sense of a cicatricial narrowing of the orifice. The presystolic thrill and murmur of mitral stenosis are always accompanied by a marked hypertrophy of the right ventricle, which can be felt during systole through the epigastrium and diaphragm as a large and hard mass, giving rise to a marked epigastric pulsation. This presystolic murmur is also a permanent murmur, but the presystolic murmur of more recent endocarditis, though it may be accompanied by a thrill, gives way early, under conditions of complete rest, to a mid-diastolic bruit, at which stage the condition may become stationary for a time—or even permanently. But this bruit also tends to change: it then appears earlier in diastole, and is heard just internal to the apex beat as a reduplicated second sound. With still further rest, the reduplication also may disappear and continue absent on the child's being allowed later gradually to get up. The bruit may be called one of mitral obstruction, as opposed to stenosis, and is probably caused by the presence of an active, quiescent, or healed vegetation on the mitral valve, or, as recently suggested by Sir Thomas Horder, to a progressive sclerosing endocarditis from infiltration of the valve-cusps [16]; in any case it is never accompanied by a hypertrophy of the right ventricle, such as occurs in stenosis.

It is most important that this bruit of mitral obstruction be not allowed to grow more marked or even to continue if possible; it is usually accompanied in recent cases by great excitability of the pulse and by cardiac dilatation from myocarditis, so that the indications for rest are two-fold. Without adequate rest, if there is any activity in the cusps of the mitral valve, their tendency will be to become further inflamed—a condition of extreme gravity, for though the myocardium is the essential part of the heart, it is the endocardium which in rheumatic carditis is the most dangerous source of recurring toxicity—largely owing to its direct communication with the blood-stream; at best, under such conditions the cusps will tend ultimately to give rise, by coalescence of their adjoining edges, to the serious clinical condition of mitral stenosis.

The morbid anatomy of endocarditis shows that in severe cases which come to post-mortem examination a greater or less degree of fibrinous deposit is found on the valves; this is followed by œdema, thickening, and deformity; vascularisation also is a frequent occurrence. It is easy to see, then, how mitral stenosis becomes established as a progressive lesion. But while the endocardial changes are as yet presumably slight, there is no reason why, given sufficiently favourable conditions, the lesion should not be cleared up with a minimum of damage, vascularisation, and cicatrix, somewhat as a corneal ulcer clears up. But any analogy to the non-vascular cornea seems to break down in the light of the work done by L. Gross [17] on the blood-supply to the heart valves and its relation to inflammation of the valves. Gross finds that all fœtal valves contain a musculature and vasculature, the natural tendency of which is to regress as age advances; vessels in normal adult valves are hardly ever demonstrable, but the valves of children contain both muscle and vessels. Moreover, all cases of valvular endocarditis show a vasculature in the valves, and in adults the most frequent site of endocarditis is the aortic cusp of the mitral valves, which is the last leaflet to lose its musculature. Thus it seems that in the child, as contrasted with the adult, the tendency to endocarditis is associated with the presence of the remains of the fœtal vasculature, and it is further inherently probable that where there has been inflammation, the regression of the vasculature will be retarded; finally, if there is established a chronic inflammatory condition of the valve, the vascularisation of the valve will tend to become permanent—a condition of affairs which stands in close relation to severe endocarditis occurring later in life.

In any case, effort must be directed to enable the valve to return as nearly as it can to its original condition. And while the physical signs are receding, it is fair to suppose that the lesions are tending to clear up. But it may take as long as six months before a diastolic bruit of mitral obstruction clears up. This happened in one case under observation in 1922, and when this child was re-examined after seven months of life in London, attending an ordinary school, the heart was practically normal, only a very slight degree of residual enlargement of the heart showing that there had ever been any trouble; the auscultatory signs were quite normal. Altogether four such cases were discharged from the seaside after rest in bed for from five to eight months, followed by gradual resumption of activity; on re-examination, after seven months' life in London, two of the children showed approximately normal hearts; one other was normal after continuing to reside at the seaside for two years. The fourth case has still an unchanged systolic murmur, but there has been no relapse and no return of any diastolic bruit. All four of them had had diastolic bruits associated with excitable pulses and cardiac dilatation; they were none of them allowed to get up until some time after the diastolic bruits had completely disappeared (see Cases 19, 22, 23, and 29).

It should be mentioned that three of these four cases had had chorea, and that only one of them has relapsed and been in hospital again—for this symptom only; but this child was only kept there for a fortnight, the functional element being considered predominant; it was interesting to notice that, while at the seaside, this child had a temporary return of all her choreic symptoms, which had been absent for some months, on being visited by a very anxious mother.

It is not, of course, suggested that the above cases are in any way cured; on the contrary, they are all in need of the most regular after-care and observation to forestall relapse; a restful summer country holiday is advised as an important feature of such after-treatment. It is thought, however, that in each case, just as in the myocardial cases a progressive cardiac lesion has, for a time at least, been arrested. Two other children with this mitral bruit who were withdrawn from treatment at the end of three months have both relapsed and had to go to hospital again; the murmur is still persisting in several cases of more severe and complicated heart disease under more prolonged treatment, and it was present in the case of two children that died. Two cases are still under observation, in which a presystolic murmur of mitral obstruction has disappeared in one case and given way in another to a mid-diastolic bruit. One of these two cases has just been withdrawn—from lack of funds; she has, therefore, of necessity to be allowed to get up gradually before undertaking the journey home. The diastolic bruit, cardiac dilatation, and rapid pulse are all in evidence again.

3. *Aortic Disease.*—Whereas mitral regurgitation in children seems never to lead per se to much hypertrophy of the right ventricle, aortic regurgitation is always apparently accompanied by a marked hypertrophic enlargement of the left ventricle, the apex beat having been found in the sixth space with a forcible impulse in every one of the nine cases examined. For some reason, aortic stenosis seems to be a rare complication of rheumatic disease, though it was present in one case examined, with a very definite history of recurring attacks of rheumatism spread over four years. Possibly the earlier regression of the vasculature from the aortic valve cusps may account for the relative infrequency of this severe complication. Aortic lesions, being rarer than myocardial and mitral lesions, are more apt to be complicated by the occurrence of the latter, and are, therefore, probably harder to study in detail. Adults suffering from aortic disease of other than rheumatic origin are frequently able to live active lives, and the mechanical deficiency of the valve need not, therefore, be considered a sign of great gravity. The amount of rest required by each patient will depend upon the evidence of there still being active infection existing in the heart as a whole, as judged by the presence or absence of change in the physical signs, myocardial and endocardial; the diastolic murmur of aortic regurgitation does not seem ever to undergo any favourable modification.

Analysis of Cases.

The following is an analysis of my own 44 cases (33 girls, 11 boys) under treatment at the seaside for rheumatic disease—mostly during the past two years. The average age was 10 years, the lowest age encountered being 6 years. It is important, I think, to say that the children have been very content and happy, even when confined to bed for many months, and this necessary factor has been due entirely to the tactful supervision of the sisters and nursing staff. Only two girls became fretful under treatment and neither did well; such children are best got rid of, partly because under emotional stress they do not make good progress, but also in the interests of the other patients in the wards. It has been found very important to have isolation accommodation for any child with a pyrexial attack, especially when tonsillitis is present.

1. Girl, aged 12; history of chorea two years; heart normal but beat rather irregular; discharged free from symptoms within six weeks. Re-examined after 18 months. Return of chorea. Heart-beat excitable still.

2. Girl, aged 12; history of chorea two months; heart normal but for soft systolic murmur, which soon disappeared. Remained six weeks. Re-examined after 18 months: quite normal.

3. Boy, aged 8; history of chorea nine months; heart normal on admission, but reduplicated second sound at apex developed; this was corrected by rest; he remained six weeks. Re-examined after 18 months: fresh chorea, some cardiac dilatation.

4. Boy, aged 8; chorea for three years, also rheumatic pains; heart normal but for slight irregularity of pulse; remained six weeks. Re-examined after 18 months: fresh chorea, some cardiac dilatation.

5. Girl. aged 13; slight attacks of rheumatism during one year; heart normal; remained six weeks. Re-examined after 18 months: quite normal.

6. Boy, aged 9; chorea eight weeks; heart normal; remained six weeks. Re-examined after 18 months: quite normal.

7. Boy, aged 9; history of chorea; heart normal; remained six weeks. Re-examined after 18 months Chorea still present, heart normal.

8. Girl, aged 9; rheumatic pains three weeks before admission; no present symptoms; remained three months. Re-examined after 18 months. Had had further heart attacks. Heart showed left ventricular enlargement and aortic regurgitation.

9. Boy, aged 7; pain in one hip for eight months; admitted with hitherto undetected heart disease (mitral regurgitation and early stenosis; aortic regurgitation), shortly developed acute tonsillitis, thought to have infected a nurse and four other cases (10, 11, 12, and 13) directly or indirectly. Withdrawn after three weeks.

10.[*] Girl, aged 14; continually repeated rheumatic attacks for two years. Showed pallor, tumultuous and rapid heart-beat with systolic retraction of the chest wall from extensive adherent pericardium; mitral disease; great cardiac hypertrophy; appeared very ill. Great improvement effected during first year in country. Then four recrudescences occurred in April to July, 1923, thought to have followed on exposure to infection from Case 9. Patient again became very pale and ill, and the heart took on the characteristics of auricular fibrillation. She got better under the influence of digitalis, but was shortly afterwards sent back to hospital with a grave prognosis. She has since died. Post mortem: the heart reveals very extensive adherent pericarditis, but no mediastinitis, great thickening of the mitral valve, and a few small recent vegetations on the aortic valve. There was general muscular hypertrophy.

11. Boy, aged 9; no history of rheumatism, but had been in and out of hospitals for chorea for three years. Considerable cardiac dilatation; mitral regurgitation and obstruction (apical diastolic bruit). Chorea got cured with rest and arsenic in five months. Heart condition much improved till reinfected, as is thought, from Case 9, when slight feverish condition with sore throat was followed after a month by long illness—pyrexia for three weeks, return of pallor, and intensification of all heart signs. Is now much better and beginning to get up again; all bruits remain as before.

12. Girl, aged 11; pains in joints 13 weeks, then chorea. Heart normal but for a mitral systolic bruit; an excitable pulse soon quieted down with rest. Then had seven days fever, resulting, as was thought, from reinfection from Case 9. Getting better again now, but mitral obstruction and aortic regurgitation have resulted from this illness (diastolic apical bruit and diastolic basal murmur).

13. Girl, aged 6; rheumatic fever three months before admission; slight chorea on admission; heart normal. Acquired tonsillitis, possibly indirectly from Case 9, after which mid-diastolic bruit at apex appeared; this was abolished after six weeks' rest. Now progressing well.

14. Girl, aged 13; rheumatic pain three months; had had dyspnœa. Heart showed on admission long-established heart disease. Hypertrophy of right and left ventricles; murmurs of mitral regurgitation, mitral stenosis, and aortic regurgitation; epigastric pulsation. Pulse very excitable—not affected by any drug. Kept at rest 11 months, then began to get up little by little. At the end of 18 months some ascites, œdema of feet, albuminuria occurred, soon corrected by short rest and full doses of digitalis. Now doing well again without digitalis. Future very uncertain. Pulse always most rapid and excitable.

15. Girl, aged 10; four times in hospital for chorea and rheumatism since 1919. Altogether five attacks of chorea and many sore throats. R. ventricle hypertrophied; bruit of mitral stenosis. Rest for three months. Now getting up; pulse has come down from 100 to 76. Heart much less excitable and no longer tumultuous at epigastrium.

16. Girl, aged 9; ill off and on for a long time. Heart dilated; presystolic bruit has become converted into mid-diastolic bruit in 14 days. Still at rest. Heart rapid and excitable.

17. Girl, aged 9; mitral regurgitation one year; never any pain or sore throat or chorea. Pulse rather rapid and variable; soft systolic murmur. Convalescent after three months.

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[*] I am indebted to Dr. Clifford Ellingworth, of the West London Hospital, for kindly sending me the heart of Case 10 to examine post mortem.

18. Girl, aged 13; three attacks in two years; endocarditis and pericarditis; pain in precordium. General hypertrophy of heart; soft systolic murmurs. Pulmonary second accentuated. Excitable pulse is now quiet after two months' rest. Getting up bit by bit.

19. Girl, aged 9; history of rheumatic carditis 11 weeks. Pulse rapid and excitable. Very slight chorea. Mitral regurgitation and obstruction (apical reduplicated second sound). Pallor. After seven months' rest pallor, excitable pulse, and apical reduplicated second sound vanished. Returned home after about a year. Re-examined seven months later, mitral regurgitation only. Pulse quiet, arrest of mitral stenosis.

20. Girl, aged 8; history of slight rheumatism, resulting in endocarditis and pericarditis during 18 weeks before admission. Heart normal except for systolic murmur at apex, which disappeared after ten weeks; was completely at rest for one month. Withdrawn from treatment after ten weeks. Re-examined a year later: had had fresh attack of rheumatic fever, now some dyspnœa and general cardiac hypertrophy, probably from adherent pericardium.

21. Girl, aged 12; chorea one year, often has pains in legs and arms, also sore throat sometimes. Heart normal. Chorea stopped by rest and liq. arsenicalis ♏ vii. t.d.s. Now getting up.

22. Girl, aged 8; chorea ten months. Heart: soft systolic murmur with reduplicated apical second sound (mitral obstruction). Rested for five months, at the end of which reduplicated second sound was gone; chorea disappeared with liq. arsenicalis ♏ iv. t.d.s. Re-examined after 18 months: heart normal, but had had some chorea, considered functional at hospital. Is now quite well.

23. Girl, aged 12; three attacks of rheumatism during two years before admission. Heart dilated, pulse excitable. Soft systolic and reduplicated apical second sound (mitral obstruction). Pale. Rested for seven months. Pulse quieted down after three months, systolic murmur disappeared in six months, and obstruction bruit in seven months. Re-examined after 18 months: heart approximately normal in dimensions, no adventitious signs on auscultation.

24. Girl, aged 12; acute rheumatic fever seven weeks before admission. Pulse excitable; heart very dilated. Soft systolic and well-marked presystolic bruits. Presystolic soon gave place to mid-diastolic bruit, then to reduplicated apical second sound. After two months child began to fret owing to letters from home, and heart signs began to reappear. As she never settled down again she was discharged after four months.

25. Girl, aged 13; rheumatic carditis two months; double mitral bruit. Heart had soft systolic only; remained at seaside four months. Re-examined 18 months later: systolic murmur only present, chorea once again.

26. Girl, aged 14; rheumatism at least five times in five years. Heart-beat very rapid; double mitral and double aortic bruits; marked pallor. Kept at rest, but fretted to be home very much; very emotional. Allowed to get up gently; pyrexia and arthritis began. Was doing no good and was discharged home where she died soon after.

27. Girl, aged 12; history: rheumatic fever seven months before admission for two months; in bed three months, getting up since; now very short of breath. Very ill and pale; heart enormously dilated; soft systolic and diastolic apical bruits. Nodules over elbows and knee; erythema iris developed on the back; pyrexia frequently; kept at rest, but steadily deteriorated and died in less than six weeks.

28. Girl, aged 12; cardiac trouble for three years since acute rheumatism. Double mitral bruit present. Was kept at rest, but was withdrawn from seaside; died some weeks or months later.

29. Girl, aged 9; contracted subacute rheumatism at seaside; quickly followed by chorea and soft mitral systolic and mitral diastolic bruits with some cardiac dilatation. Kept at rest for four and a half months; all symptoms and signs completely cleared up, and after eight months she was allowed to live a normal quiet life. After three years the heart's condition remains normal and there has been no relapse at any time.

30. Girl, aged 11; chorea two months. Appeared normal in every way and was given moderate rest for two months, then discharged. Readmitted much worse after three months; bad chorea present and cardiac dilatation and soft systolic murmur at apex. All symptoms reduced by rest and Fowler's solution in three months. Re-examined after six months: normal in every respect.

31. Boy, aged 8; free from chorea one month after first attack. Bruits: soft mitral systolic and mitral diastolic. The latter disappeared with three weeks' complete rest. Withdrawn from treatment.

32. Girl, aged 14; rheumatic illness five or six times in two years. Heart: very rapid and excitable beat; systolic and presystolic murmurs at apex. Also aortic diastolic with enlarged left ventricle. Presystolic bruit was accompanied by a thrill, but with complete rest gave way to reduplicated apical second sound in three weeks, which disappeared in another five weeks. Shortly afterwards child was withdrawn from treatment and then discharged after being allowed to get up; showed all the original cardiac signs. Duration of treatment under three months.

33. Girl, aged 11; heart trouble for two years, rheumatic endocarditis. Generalised cardiac hypertrophy, probably from chronic adhesive pericarditis. Mitral systolic and mitral diastolic murmurs. Pulse very excitable. Kept at rest, mitral diastolic bruit was abolished in two months, but other signs persisted. Recently withdrawn from treatment. Prognosis considered grave.

34. Girl, aged 13; rheumatism and chorea six months. Heart normal, but for soft systolic, which disappeared in six weeks. Discharged shortly afterwards.

35. Boy, aged 8; heart trouble for six months. Heart rather dilated, and occasionally a reduplicated apical second sound heard. Tendency noted for heart to become markedly dilated on any slight additional exertion. Gradually became convalescent during six months, and on re-examination 18 months from first admission was normal in every way.

36. Boy, aged 9; chorea for four months, mitral diastolic murmur very faintly audible at times. Withdrawn.

37. Girl, aged 9; tuberculous child discovered to have very rapid and excitable heart with pulsation in the neck. No rheumatic history, but thought to be rheumatic. Pulse settled down to deliberate rhythm in five months. Re-examined seven months later: perfectly normal.

38. Girl, aged 9; chorea one year, rheumatism once recently. Some cardiac dilatation, soft systolic murmur; pallor. Withdrawn after two and a half months. Re-examined after six months: had had a fresh attack of rheumatism with chorea. Heart condition much as before.

39. Girl, aged 9; had "growing pains," then chorea six weeks before admission. Heart dilated with soft systolic murmur. Heart normal in ten weeks' time; kept in bed for a month. Re-examined after six months: normal.

40. Girl, aged 10; subacute rheumatism two months. Heart normal; discharged after six weeks. Will be re-examined next year, if possible.

41. Boy, aged 8; rheumatic pains three weeks before admission. Heart perfectly normal. Stayed for three months; normal on discharge. Re-examined 18 months later: had had bad relapse with resulting aortic disease and great left heart hypertrophy.

42. Girl, aged 11; rheumatism 12 weeks. Heart showed rapid action, musical mitral systolic, and reduplicated second sound at apex. Considerable dilatation. Withdrawn from treatment after three months. In Carshalton hospital 18 months later.

43. Girl, aged 13; pains in legs three to four years before admission. Has been attending hospital ever since on and off. Pains again this year. Heart shows a soft systolic murmur only. Infection would seem to be of a very low virulence if active at all. Is now getting up after a month's rest.

44. Boy, aged 13; acute rheumatism, following upon tonsillectomy; operation was performed in consequence of recurrent attacks of tonsillitis. All the joints returned to normal except one ankle, which became pyæmic and had to be incised and is now ankylosed. The heart is normal in dimensions but shows a soft systolic murmur; he has also had a considerable amount of chorea, which was abolished by rest and Fowler's solution. This case is of special interest as showing characteristics of both metastatic arthritis and of rheumatic disease. He is having an arthroplasty performed upon the ankle this year, six months after the incision over the joint was completely healed.

Conclusions.

1. The absence of a working knowledge of the bacteriology underlying rheumatic disease is an important factor in delaying the recognition of the great need that exists of controlling a disease which is of very widespread incidence and which has far-reaching effects upon the health of the community. At the same time, the absence of institutions where patients might be under collective observation prevents there being an opportunity for organised research upon the causation of the disease. Here there is indeed a vicious circle.

2. While no doubt family predisposition, bad housing, and damp are important factors in spreading the disease, there is evidence that rheumatic disease may be infectious, in which case the isolation of patients suffering from the rheumatic state would be desirable.

3. In rheumatic children sent away to the country for a period of rest, it has been found that the shorter their stay in the country, the more frequently do they relapse, and vice versâ ; this, moreover, appears to be the case independently, to some extent, of whether they have heart disease or not. The longer the stay, therefore, the better the prognosis is likely to become.

4. Tonsillectomy is an important factor in controlling the recurrence of acute rheumatism and rheumatic pains ; it is less effective in chorea (W. St. Lawrence).

5. It would be in the end an economy of time and money as well as of health if every child who had shown any manifestation of rheumatic disease were sent into the country for a long term of rest or quiet life, just as tuberculous cases are sent away.

6. Many cases could only be arrested in an early stage if the disease were made notifiable ; notification would also enable contacts to be inquired into and examined—an important point in view of the insidious onset of the disease in many cases, and of its common incidence in members of the same family.

7. Cases require complete rest in bed so long as there is any indication that there is active disease, as would be shown by (*a*) constitutional signs and symptoms ; (*b*) progressive changes in the physical signs manifested by the heart ; even favourable changes are to be taken as evidence that an active infective phase has not entirely been closed.

8. Chorea is a complicating constitutional symptom of rheumatism, though often the first that comes under the parents' notice. Given, however, a long-time outlook in the prognosis and treatment of rheumatic disease as a whole, this symptom, like the other constitutional symptoms—e.g., joint pains, anæmia, and pyrexia—will probably yield to treatment. In chorea, however, a functional element is often predominant ; consequently the intensity of the movements and emotions is then no close measure of the extent of the active rheumatic infection, and in this way chorea differs from the other constitutional symptoms. In such cases a discriminating emotional restraint is of the greatest importance.

9. In the diet, milk is the most important ingredient, and where there are any active constitutional symptoms—e.g., pyrexia, arthritis, and rapid pulse, a milky diet or even milk alone should be the only food given. Such a diet has an important effect in reducing the temperature, as was pointed out to me recently by Dr. R. G. Hicks, of Ramsgate.

10. Drugs are most important as adjuncts to a scheme of long-time treatment ; their danger consists in their being allowed to replace it. The following may especially be mentioned :—

(*a*) *Salicylate of Soda.*—Full doses are given in cases of relapse with pyrexia, especially when pain is present. Double doses of the bicarbonate of soda are always given at the same time.

(*b*) *Arsenic.*—Fowler's solution usually completes the reduction, by rest in bed, of chorea, if given time enough. The dose is increased week by week by ♏ i., starting from ♏ ii. and progressing up to ♏ vi. or even ♏ ix. t.d.s. Symptoms of intolerance have not been met with, and the choreic symptoms disappear at a certain level of dosage ; the dose is then kept constant for two or three weeks, after which it is similarly lowered by ♏ i. or ♏ ii. every week, until the drug has been left off. In cases of intolerance to the oral administration of arsenic, cacodylate of soda given hypodermically would probably be useful.

(*c*) *Digitalis.*—Moderate or full doses of the tincture are useful in some cases of recent or active myocarditis. One effect of the rheumatic poison upon the myocardium, unlike that of typhoid fever, is excitation, and the administration of digitalis probably gives rest to the heart muscle by showing the rate of the heart-beat. In many nervous, excitable children, however, it has very little effect.

(*d*) *Iron and Hæmoglobin.*—These are indicated by anæmia persisting during the long convalescent stage.

(*e*) *Opium.*—This drug has not much use in early heart disease ; it is of use rather in cases of great excitability of the heart associated with pericardial adhesion, and is usually given in company with digitalis.

11. In rheumatic disease generally it appears that a much longer outlook has to be taken of the time-element necessary to effect a cure. A length of time, approximating even to that required for the cure of tuberculous cases, would not be unreasonable in view of the comparative destructiveness of the disease. Under the present conditions available for poor folk any prognosis other than a grave one is unreasonable, while even among the well-to-do, cases may be seen of the most fatal and crippling type, because sufficient rest has not been persisted in at the onset. The fact that in some cases the child does not feel ill at all until the heart has suffered irretrievable damage points to the absolute need for constant supervision of the heart in the early stages of the disease, and such constant supervision cannot be carried on effectively under the general conditions obtaining at present ; similarly, the carrying out of adequate after-care in cases discharged from the hospitals is at present exceedingly difficult to manage. Early and prolonged treatment and regular and prolonged after-care are the most important requirements in the management of acute rheumatism to-day.

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SPINAL ANÆSTHESIA AND ITS DRAWBACKS.

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SINCE entering into everyday use under the powerful influence, first of Tuffier and afterwards of Chaput, spinal anæsthesia has been amply discussed, and since the war the question has been permanently to the fore ; its undoubted and numerous advantages have been vaunted and its disadvantages have been emphasised—often with considerable force, for it has been held responsible for accidents of considerable gravity. My chief, Paul Riche, initiated me into the practice of spinal anæsthesia by stovaine in 1909, and I have since then personally carried out some 2000 spinal anæsthesias, which number perhaps entitles me to a personal opinion borne out by facts.

I do not wish to deal here with the indications, technique, or advantages of this method. Wishing to define its disadvantages, I observed with the greatest care the cases of 260 patients rachianæsthetised and operated upon by myself at Prof. Gosset's private clinic—not only at the time of the operation itself but also during the post-operative period—I made notes of the anæsthetic used, the incidents occurring during anæsthesia and the days following, and, finally, after a considerable length of time had elapsed ; it is the result of these observations which I wish to summarise here.

Technique.

There are, of course, two distinct forms of spinal anæsthesia : (1) Spinal anæsthesia limited to subumbilical operations, and (2) generalised spinal anæsthesia. The latter may be attained by two methods, one being Jonesco's, consisting in administering the anæsthetic at different heights of the spine by means of spinal punctures, the height of which depends on the extent of the anæsthesia desired ;

and the second that of Le Filliatre, Delmas, and others, consisting in the evacuation of cerebro-spinal fluid, the quantity of which is in direct ratio to the extent of the anæsthesia desired, and varies from 20 to 25, 30 and 35 c.cm. of fluid. In this manner, after the injection of the anæsthetic, insensibility may be obtained as far as the trigeminal region.

I have carried out spinal anæsthesia by the Le Filliatre method in cases of operations above the level of the umbilicus, without obtaining results of remarkable constancy or quality, whereas I have almost always noticed (in one case out of every two) that the patients bore badly these large withdrawals of cerebro-spinal fluid and the dissemination of the anæsthetic as far as the highest regions of the cerebro-spinal axis. I have given up spinal anæsthesia entirely for all operations not limited to the sub-umbilical segment of the body.

I usually perform the lumbar puncture between the third and fourth lumbar vertebra, withdrawing 10 c.cm. of cerebro-spinal fluid and, using fine needles (Tuffier's), inject 5 cg. of a 10 per cent. solution of stovaine-billon. I have used other anæsthetics in a number of cases, but have not thereby found any advantage, and have always reverted to stovaine which, in the course of some 2000 cases, has never given serious trouble, and has so far not been the cause of death or permanent or definite injury.

Statistics of Cases Treated.

I have followed up 270 cases of spinal anæsthesia, the most recent dating from December, 1922, and have made a point of noting scrupulously every incident in their history. The cases were as follows:—

214 anæsthetised with stovaine, 10 per cent. solution.
5 ,, ,, scurocaine.
18 ,, ,, syncaine.
3 ,, ,, novocaine Merck.
30 ,, ,, stovaine caffeine according to a formula similar to that of Jonesco.

Of these 270 cases of anæsthesia, only seven were for sub-umbilical operations. I was completely unsuccessful in 10 cases which necessitated a second anæsthesia; all observations were conclusive from that point of view, the patients being nervous and uneasy. In five cases there was an insufficient flow of the cerebro-spinal fluid at the time of the puncture. Out of these 10 cases there were:—

7 anæsthetised with stovaine.
2 ,, ,, syncaine.
1 ,, ,, novocaine.

In one case where syncaine did not take effect I administered stovaine a second time, obtaining an excellent result. In 3·7 per cent. of the cases no anæsthesia whatsoever was obtained, either objectively or subjectively, and a second administration was thus required. In eight cases (stovaine) the anæsthesia was adequate and enabled the operation to be carried out, but the patients noticed a sensation of discomfort and pain, especially at the moment of the opening of the peritoneum and during the abdominal manipulations, internal traction, separation of adhesions, &c. In all the other cases, 242 out of 260, anæsthesia was perfect and lasted from one hour to one hour and a quarter.

Discussion of Failures.

How can these failures, some complete, some partial, be explained? They might be attributed to a bad quality of the anæsthetic, which is unlikely, as the ampoules containing it are prepared in great quantities. The product may be acted upon by the glass of the ampoule; this explanation has value, because hard glass unaffected by water at the temperature of the autoclave is at present difficult to obtain industrially.

It may also be considered that the anæsthetic has not been carried entirely into the interior of the theca. The needle terminates in a fairly long bevel, and if the penetration into the subarachnoid space has been incomplete—i.e., if the dura mater is astride the bevel—the anæsthetic solution may be distributed either entirely or partly around the dura mater, which explains the insufficiency or absence of anæsthesia. Finally, the possibility of compartments existing in the subarachnoid space must not be lost sight of, because in cases of insufficient anæsthesia, and even when the anæsthesia is perfect, an absence of motor paralysis is noticeable, as if the anterior roots had not been touched by the anæsthetic used. Then there are patients whose psychological condition prohibits the use of spinal anæsthesia.

During the period of anæsthesia I have noticed cyanosis three times, and 40 cases of vomiting, sometimes accompanied by pallor with sweating and dizziness. The three cases of cyanosis recorded were observed during extensive anæsthesia administered for operations above the level of the umbilicus—viz., three cases of cholecystectomy. The anæsthetic used was stovaine, with a withdrawal of 20 c.cm. of cerebro-spinal fluid. In 40 cases of vomiting the anæsthetics were distributed as follows: 30 stovaine (pure), two scurocaine, eight syncaine. In the above record stovaine caused vomiting during operation 30 times out of 214 cases—i.e., in 14 per cent. of the cases recorded.

Post-Operative Complications.

The study of the post-operative incidents is no less interesting.

Vomiting.—Of 29 cases, in 23 the vomiting was of short duration. In 20 of the latter the symptom was recorded in the first 12 hours after the operation; in the remaining three cases there was vomiting during 24 or 48 hours, accompanied in these cases by headaches, torpor, slight photophobia, and occurring without any cause, or as the result of a change in position. In six cases the vomiting lasted over six days, accompanied, moreover, by severe cephalalgia and an undeniable state of torpor with saburral tongue.

Cephalalgia.—Of 37 cases, in 23 cephalalgia occurred during two or three days, commencing 24 or 48 hours after the operation and accompanied, in three cases, by vomiting of a cerebral type. These cases of transitory cephalalgia could be overcome by aspirin and absolute rest without any other treatment. The anæsthetic used was in 16 cases stovaine (pure), in two scurocaine, in five syncaine. In 14 cases the cephalalgia was more intense and lasting. It is interesting to note that these prolonged cases of intense cephalalgia occur either immediately after the operation, lasting four or six days, or several days after the operation—i.e., real retarded cephalalgia, lasting variable periods. The cephalalgia usually occurred alone; in six cases it was accompanied by vomiting.

Of the remaining 14 cases the anæsthetic used was stovaine in 12, scurocaine in one, and syncaine in one. Summarising the cases of cephalalgia, then, we have: In 240 cases of spinal anæsthesia, 37 (or 16 per cent.) had cephalalgia; in 214 of these 240 cases stovaine was administered, and 28 of the 214 (or 13 per cent.) had cephalalgia; in the remaining 26 of the 214, nine cases (or 34 per cent.) had cephalalgia, three of these nine having had scurocaine administered, and six syncaine.

The cephalalgia is often aggravating, always troublesome, and difficult to account for, many hypotheses having been advanced in the matter. It is due to meningeal irritation; it was once thought that it was consecutive to phenomena due to hyperpressure, but cases in which a slow pulse-rate is recorded are altogether exceptional. I noticed this in one case only (spinal anæsthesia by stovaine). I performed an evacuating lumbar puncture, which did not modify the cephalalgia. It has also been attributed to the escape of cerebro-spinal fluid through the breach in the rigid dura mater formed by the puncturing needle. Whilst emphasising the power of secretion of the choroid plexuses, which tends to prevent this loss, it should be noted that the use of the finest of needles and all the steps taken to prevent such oozing, ventral decubitus in particular, are without result. Finally, it is a matter of experience that cephalalgia occurs in series, without its being known exactly why and without its being possible to attribute it more to the one or the other anæsthetic used. In any case it constitutes the most important complication of spinal anæsthesia.

Other Complications.—I observed, beyond these complications, one case of subicterus in an operation for hernia (stovaine); one case of shingles on the second day (stovaine), combined with a cerebral syndrome characterised by cephalalgia and vomiting; two cases of strabismus through transitory paralysis of the external ocular motor. These two cases were observed after spinal anæsthesia by stovaine; strabismus was combined with a syndrome of meningeal irritation, consisting of cephalalgia and vomiting. The patients were non-syphilitic. In both cases the strabismus was progressive. It occurred on the sixth day, diplopia lasted five to seven days, and finally subsided completely.

In order to give a complete account of my observations, I must mention that I recorded 12 cases of pulmonary congestion, of which 10 occurred after spinal anæsthesia by stovaine, which proves that spinal anæsthesia is no protection against post-operative pulmonary complications, as has been erroneously thought. Such are the only disorders recorded. I have not recorded any cases of paralysis or paresis of the lower limbs, or of sphincteral disorders, such as have been brought to notice. In my 2000 cases of spinal anæsthesia there has not been a single case of fatal complication.

I have carried out spinal anæsthesia in 30 cases with the stovaine-caffeine mixture similar to Jonesco's and corresponding to the following formula: Stovaine 0·06 g., caffeine 0·50 g., sodium benzoate 0·50 g., water q.s. for 2 c.cm., in sterilised ampoules.

Patients who were rachianæsthetised in this manner did not undergo any facial alteration; the face retained its normal colour, or even became slightly coloured. The pulse was not modified. In five cases out of 30 I observed vomiting during the operation. The most remarkable thing is that the patients had no post-operative inconvenience, and cephalalgia was not recorded in any of the cases injected with the above-mentioned stovaine-caffeine mixture. It would appear, therefore, that the addition of caffeine to stovaine not only does not modify the anæsthetic properties of this product, but, by practically completely obviating cephalalgia and reducing vomiting considerably, improves to a great extent the after-effects of the anæsthesia.

The superiority of this mixture of stovaine and caffeine has already been pointed out by Jonesco, and also by Carlos E. Roe, of Madrid, in *Medicina Ibera* of Nov. 11th, 1922. The latter has performed 5005 spinal anæsthesias. He uses stovaine in doses of 0·07 g., and has had only one fatal case in which for an operation of the thorax he injected 0·12 g. of stovaine by the Le Filliatre method. Since 1921 he has used the following mixture: Stovaine 0·07 g., caffeine 0·20 g., water 1 c.cm.

The post-anæsthetic sequelæ emphasised by writers were not noticed by Roe, who considers that the interpretation of these symptoms is pure imagination. In 1921[1] René, Bloch and Hertz published five observations of serious cases of syncope successfully treated by intraspinal injections of caffeine. These cases of syncope were consecutive to generalised anæsthesia administered by the Le Filliatre-Delmas method with syncaine or scurocaine as anæsthetic agent. Recently[2] there appeared eight further observations of serious cases of syncope, following spinal anæsthesia administered in every case for operations on the sub-umbilical segment of the body. The different anæsthetics used were: Novocaine, five cases; syncaine, two; scurocaine, one case. Two of these cases of syncope were fatal; all eight were treated with intraspinal injections of caffeine, and six cures resulted.

One cannot help noticing that the serious complications recorded requiring "heroic medication" are not consecutive to spinal anæsthesia administered with stovaine. Personally, in some 2000 cases, I have never encountered accidents of such considerable gravity, nor have I ever found myself compelled to imitate Bloch and Hertz in administering a secondary injection of caffeine into the subarachnoid space. The observations of different origin which have been published by these authors show that spinal anæsthesia was practised on the lower segments of the body. No attempt was made to obtain generalised anæsthesia, yet there were eight cases of serious syncope, the anæsthetic used being novocaine or one of its derivatives; thus I cannot agree with Bloch and Hertz that this product is non-toxic. Bloch and Hertz point out an interesting fact—namely, that the mixture of novocaine-caffeine has imperfect anæsthetic properties; this brings it into contrast with the remarkable efficacy of the stovaine-caffeine mixture, as personally experienced by myself, by Jonesco, and by Roe. Bloch and Hertz conclude that the reduction of the anæsthetic properties of novocaine through the addition of caffeine proves the lesser toxicity of the latter. This conclusion is difficult to comprehend. The fact would go to prove that the anæsthetic value of novocaine is less, but this is not new, and the descending hierarchy of the anæsthetic value of cocaine, of stovaine, and of novocaine has been known for a very long time.

The interesting researches of Bloch and Hertz into intraspinal injection of caffeine to try and arrest serious syncope—which would appear to be fairly frequent, and which was first heard of in 1921, when spinal anæsthesia had been known for 25 years—I have had the privilege of persuading surgeons in favour of this method to associate caffeine with the anæsthetic, an attempt similar to that made a long time ago when the strychnine-stovaine mixture was being used.

Summary.

In some 2000 cases of spinal anæsthesia by stovaine I have never experienced a fatal accident, nor have I had to resort to the "heroic medication" of René, Bloch and Hertz, because I have never met with syncope similar to that described by them. I have studied all the immediate and consecutive disturbances in 260 cases of spinal anæsthesia: cephalalgia, vomiting, strabismus, &c., of which I have already given details. In 30 cases of spinal anæsthesia by stovaine-caffeine I met with no complications. This brings home to me the superiority of this mixture, provided that it be used for sub-umbilical operations according to the technique laid down by Tuffier and Chaput, which is the only one justifying the statement that spinal anæsthesia is the ideal anæsthesia for the single-handed practitioner. Up to July 1st I carried out 90 operations of spinal anæsthesia with the stovaine-caffeine mixture, and always met with the same favourable results. I no longer notice the syndrome of anguish, pallor, sweating, and vomiting during the anæsthesia. In some cases there was isolated vomiting, but in all the patient looked reposed and showed normal facial colouring. No headache or post-operative vomiting was induced. In some cases the duration of the anæsthesia, which attains and exceeds 50 minutes with stovaine, is slightly shortened.

Note.—Experience has proven that it would be advantageous to diminish the dose of caffeine. I have noticed, in fact, in one case a prolonged retention of urine not remarked till then in my observations. Jonesco has drawn similar conclusions. The dose of caffeine to be used should not exceed 0·15 g.

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[1] La Presse Médicale, 1921, No. 53.

[2] Ibid., 1923, No. 2, Feb. 7.

THE TREATMENT OF RHINO-LARYNGOLOGICAL TUBERCULOSIS BY FINSEN LIGHT BATHS, AND RESULTS.[*]

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THE treatment of rhino-laryngological tuberculosis by means of the Finsen light is not entirely new; for as early as nine years ago I published the first few results obtained after treatment of tuberculosis of the larynx by the Finsen light; since then my number of cases has greatly increased and the treatment has been thoroughly tested.

The Method.

The Finsen bath consists mainly of an electrical carbon arc light which is supplied in two sizes, a small one and one somewhat larger. The small one is used for the treatment of more serious cases, who cannot bear to sit up—for instance, patients with tuberculosis of the larynx or patients recently operated on for tuberculosis of the ear. It consists of a system of three electric carbon arc lamps, which are connected either in parallel or in series, the latter, however, only when using a current of 220 volts which will then require a series resistance of 55 volts. The lamps are suspended from the ceiling and have check-rods in a perpendicular plane to prevent the lamps from rotary movement. The lamps must be capable of a perpendicular movement of one metre so that in the end-positions the distance of the light arc from the floor is 75 cm. and 1·75, but these measurements are naturally subject to alteration according to the height of the patient's couch. Two patients, each on his own couch, can be treated simultaneously by this type of Finsen bath. The couch must be as close to the light as possible. The lamps use 20 amperes and 55 volts each. The distance between the light arcs is 550 mm.

With regard to the large Finsen bath, six to eight patients can be treated at the same time, sitting round two large electric carbon arc lamps, each of 75 amperes and 55 volts. The distance between the light arcs of the two lamps is 600 mm. The carbon-electrodes of the lamps are situated perpendicular to each other, the positive being fitted uppermost, because if direct current is used a crater will be formed in the positive electrode, and from this crater the greater part of the effective rays is radiated. With alternating current, on the contrary, the light-cone is emitted from the upper and the lower carbon-electrode alternately, and hence, so much effective chemical light is lost that alternating current cannot be used, without first being converted into direct current. No glass or other covering round the light should be used, as the chemical rays would then be absorbed. The lamps must burn with a clear, steady light, and the carbon-electrodes must not be allowed to glow or to soot up. It is evident that the large lamps generate a larger amount of chemical light than the small ones, but this difference is neutralised by the fact that the patients cannot sit as close to the large lamps as they can lie near to the small ones, because the latter give off less heat than the large ones, and it is of importance that it should be possible to place the patients closer to the light of the small lamps, because the intensity of the light decreases with the square of the distance. On account of the strong light the faces and the eyes of the patients are protected by a paper shade, but otherwise they are completely naked. They must be placed as near to the light as they can bear the heat, and they must turn round occasionally in order that the light may be equally distributed all over the body. When using the large lamps of 75 amperes, a room with a cubic capacity of 90 to 100 m. and with a floor area of 5 by 4·8 metres will be necessary. With the three small lamps, a cubic capacity of 75 to 80 m. and a floor area of 5·5 by 3·5 metres will be sufficient.

The Indications.

Patients with tuberculosis of the larynx or those who are seriously ill or feverish, lie in the Finsen bath the first few days from 10 to 15 minutes, slowly increasing up to the full dose of two and a half hours every alternate day. When they are able to sit up, they may begin with the large lamps, taking a shorter bath the first few times, but they may, of course, continue with the small lamps if more convenient. Patients with other illnesses—for instance, lupus vulgaris, where the state of health in general is good, can well begin with 30 to 45 minutes with the large lamps. After the Finsen bath a tepid shower-bath is always given and the out-patients go home to their work.

In order to be able to treat as many patients as possible we only give a Finsen bath every alternate day, but otherwise I think it is of little importance whether you give a bath every day or only every other day. After the first baths you will find on the body an erythema of varying strength, ranging from an intense blush to the formation of vesicles. In a short time the patients will be brown pigmented, as if sunburnt, and from then onwards will feel no further inconvenience from the Finsen bath; on the contrary, they will find it delightful in every way. It might be expected that patients who walk, during the cold season of the year, straight from a Finsen bath to their work would be more disposed to colds, but my observations would seem to show the contrary.

Contra-indications are shown only in certain heart and kidney troubles—i.e., provided that the latter are not of tuberculous origin. But I am not afraid to treat out-patients also, and even when they have a temperature of 100·4° or 100·8° F. before taking the bath. I have shown, further, that the Finsen bath, even if uncombined with any other treatment, is an effective cure for rhino-laryngological lupus vulgaris and tuberculosis of the larynx; but if you combine the Finsen bath with some other treatment, many of the patients will get well more quickly. Therefore, when treating lupus vulgaris, I always combine the Finsen bath with surgical treatment or electrocoagulation simultaneously. I also do this in many cases of tuberculosis of the larynx.

Heiberg and I have demonstrated—also by histological examination—that the Finsen baths are a thoroughly effective cure for tuberculosis of the nasal mucous membrane, even when uncombined with any other treatment. We have examined the inferior turbinals during various phases of the treatment in a number of cases, and have shown that this treatment exhibited a definite cure. The question of exactly why the Finsen bath has this beneficial effect has not yet been solved.

The Results.

I should like now to mention the results of this treatment when used in lupus vulgaris of the mucous membrane of the nose, mouth, throat and larynx, and in order to do so I will consider the patients who came to my department as new patients during the years 1913 to 1921.

379 Patients Treated for Lupus Vulgaris by Light Baths.

Affections of the—

Nose.	Mouth.	Throat.	Larynx.	V.R.S.	W.R.+	Steth.+
358	90	92	38	123	361	50

V.R.S. = Various regions simultaneously. Steth. = Stethoscopy.

30 Cases Lapsed out of 379—Remainder 349.

Unchanged.	Aggravated.	Died.	Improved.	Still under treatment.	Cured.
1	2	5	9	28	304 = 87·1 %

Periods of Observation for 304 Cured of Lupus Vulgaris.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.	3–4 ys.	4–5 ys.	5–6 ys.	8–9 ys.	9–10 ys.
66	26	47	39	33	44	19	18	8	3	1

ms. = months. ys. = years.

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[*] Abstract of an occasional lecture delivered before the Royal Society of Medicine on Dec. 3rd. The lecturer was introduced by Sir StClair Thomson. For the history of the Finsen bath, see Strandberg, Acta Laryngologica, vol. iv., fasc. 3, 1922.

Recurrence: 25.

Lapsed cases.	Still under treatment.	Re-cured.
1	3	21

Periods of Observation of 21 Re-cured Cases.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.
7	1	4	2	1	6

I have treated tuberculosis of the middle ear and the temporal bone with excellent results too, but in view of the brief time I have at my disposal, I will not touch upon them here, but content myself with mentioning the results obtained in tuberculosis proper of the larynx by which term I do not imply the ordinary laryngitis, with some reddening of vocal cords, which is so often found and frequently disappears spontaneously in patients with tuberculosis of the lungs who cough much, but by which I mean the infiltrative or ulcerative affection of the larynx which occurs among patients with tuberculosis of the lungs.

Here we have in all 100 patients, all with aggravated affections of the larynx.

100 Patients with Tuberculosis of Larynx.

Before Treatment.

Hoarseness.	Pain and difficulty in swallowing.	T.B. in sputum.	Tuberc. of lungs.	Hæmoptysis.
97	37	80	100	8

After Treatment.

The voice.		Pain and difficulty in swallowing.		Hæmoptysis during treatment.
Clear	78	Cured	32	2, both having had hæmoptysis before treatment.
Improved	15	Improved	3	
Unchanged	4	Unchanged	2	

100 Patients with Tuberculosis of Larynx.

77 out-patients; 23 in-patients.

Cured in larynx.	Still under treatment.	Lapsed cases.				
53	10 all improved.	37	Improved	19		
			Unchanged	6		
			Aggravated	6	Improved	3
			Died	6	Unchanged	1
					Aggravated	2

Periods of Observation of 53 Patients Cured of Tuberculosis of Larynx.

Light baths, 34 cases. Light baths + surgical treatment, 19.

0–3 ms.	3–6 ms.	6–12 ms.	12–18 ms.	18–24 ms.	2–3 ys.	3–4 ys.	4–5 ys.
22	5	8	2	4	7	3	2

Recurrence: 3.

Still under treatment, 2. Re-cured and without recurrence in one year, 1.

It will be seen that 97 were hoarse and many of them completely aphonic before treatment, yet 78 patients regained their voice full and clear; in 15 cases the voice was improved, while in 4 patients only did the voice remain unchanged even after treatment; 37 patients had pain and difficulty in swallowing before treatment, while after treatment 32 were entirely free from these troubles, 3 were improved, and only 2 patients remained unchanged. I may add that pain and difficulty in swallowing frequently passes off very soon. It is noticeable that the only two patients who showed any hæmoptysis had this symptom also before treatment. None of the other patients, however, exhibited any hæmoptysis at all during treatment.

With regard to the 77 patients who were treated as out-patients it must be pointed out that none of them could obtain any kind of sanatorium treatment, and as they lived in poor—and frequently, because of their illness, very poor—homes, they had no money to spend on any kind of special food, and the majority were obliged to work, as best they could, in order to earn sufficient money to support their homes, and this even during the first period of treatment, when they were often very ill indeed. When they had been treated for some time the majority of the patients were able to work much as before their illness. The 10 patients, who are still under treatment, have all improved, and out of the 37 lapsed patients 19 had improved, in some cases so much that they were able either to be admitted to a sanatorium or they felt so well that they would not spend more time on treatment. The words "unchanged" or "aggravated" mean *materially* unchanged or aggravated, while, as will be seen from the table, nearly all the patients were relieved of their pain and difficulty in swallowing. During the treatment 28 out of 53 increased in weight, some patients only a pound or two, but others as much as 30 lb.

The number of treatments with the light bath averaged about 86. Fifty-three per cent. of cures of tuberculosis of the larynx is a very large percentage, larger than that of any other treatment up to date. But this treatment has later been thoroughly tested in other hospitals also; in the Oresunds Hospital for Tuberculosis at Copenhagen Blegvad cured some 30 per cent .of the 110 in-patients. Affections of the larynx which I have treated were often in a very advanced stage. No doubt the percentage of cures might be greatly increased in patients with less advanced lesions and treated at an earlier stage.

A CASE OF A LARGE PHARYNGEAL DIVERTICULUM

CURED BY OPERATION IN TWO STAGES.

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THE following case is recorded owing to its uncommon character. The patient, a cab-driver, aged 54, was admitted to St. George's Hospital on Sept. 21st, 1922, complaining that he "couldn't keep his food down." He had begun to notice this two years previously. At first small amounts were regurgitated immediately after meals and at rare intervals. The amounts had gradually become larger and the intervals shorter. During the two years he had lost two stone in weight, but had remained at work up to the time of admission.

Condition on Admission.—He was thin and weighed only 8 stone, but his general appearance was good and his appetite was not impaired. After each meal he was observed to cough and bring up mouthfuls of frothy mucus mixed with particles of food. The cough caused him some distress and persisted for about an hour, when a large amount of food was suddenly regurgitated. The average amount was 28 ounces. He said that he often brought up something he had eaten two or three days before. Examination disclosed a soft enlargement with ill-defined outlines in the posterior triangle of the neck on the left side. Skiagrams corroborated the diagnosis of pharyngeal pouch. Fig. 1 shows the characteristic rounded outline of the pouch, descending well into the thoracic inlet. Examination with the screen showed that the bismuth first entered the pouch in driblets and continued to do so until the pouch was filled and its rounded outline complete; all the bismuth taken subsequently passed down the œsophagus direct.

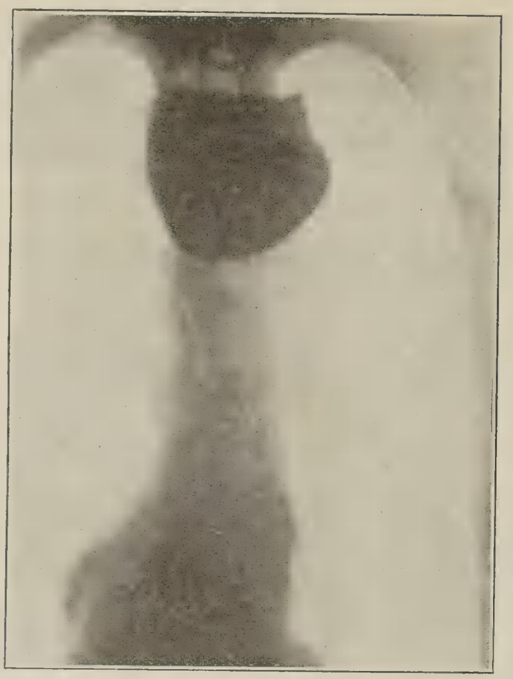
It was decided to operate in two stages. For three days previously the pouch was washed out after each meal with saline lotion introduced through a Jacques catheter. It was quite easy to pass the catheter into the pouch and the fundus appeared to be reached at a distance of 12 inches from the incisor teeth.

Operation.—The first stage of the operation took place on Oct. 9th, 1922. An incision 3½ inches long was made over and parallel to the internal border of the left sterno-mastoid and gradually deepened. The carotid sheath was drawn outwards and the thyroid and trachea gently displaced inwards. The inferior thyroid artery was divided between ligatures. The pouch was brought into view and could be seen to take origin posteriorly, as in all such cases, near the junction of the pharynx and œsophagus. The fundus was gently freed with the finger and brought out into the wound. It was elevated until the internal opening looked downwards and was fixed in that position with catgut sutures to the fascia of the neck. The wound was closed and the pouch left protruding from its upper extremity. At the time of the operation the pouch was 4 inches long, but it rapidly shrank and became quite firm, rather resembling a soft uterine polypus. Fig. 2 shows the appearance of the pouch one week after the first operation. On the afternoon of the day of the first operation the patient could swallow without difficulty or distress and was naturally delighted.

The second stage of the operation took place on Oct. 30th. The pouch was cut off half an inch from the skin level. The fibrous and mucous layers were easily recognised and separated from each other until it was possible to put a couple of purse-string sutures round the mucous layer and invaginate it. The opening in the fibrous layer was closed with a continuous suture. The skin edges were slightly raised without separating the adhesions round the neck of the pouch and brought together. The patient was discharged from the hospital three weeks later with the wound firmly healed.

On Feb. 28th, 1923, the patient reported for inspection. He had recovered the two stone which he had lost, had been at work continuously since his discharge, and described himself as entirely free from any signs of his former trouble. Fig. 3 shows the man's present condition and the wound in the neck completely healed.

FIG. 1.

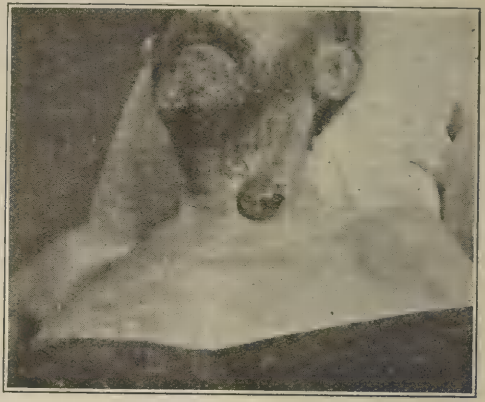


Showing rounded outline of pouch filled with bismuth, and bismuth passing down the œsophagus. (For the photographs we are indebted to Mr. C. P. Miller, of St. George's Hospital.)

Remarks.

Although such cases as this are not so rare as Butlin supposed when he first reported one in 1893,[1] yet they are sufficiently uncommon to justify the record of a single case, in which the pouch was of such great size as to hold nearly a pint and a half. In the earlier operations performed in one stage, there was commonly leakage from opening the pouch and grave risk to the patient from mediastinitis. To avoid this risk some operators recommended invagination of the pouch into the pharynx or œsophagus or fixation upwards to the side of the pharynx without opening it. In such cases temporary success was liable to be followed by recurrence of the symptoms, if the pouch regained its original position. The method adopted in this case secures a radical cure by excision of the pouch, whilst at the same time the risk of mediastinitis is reduced to a minimum, since the sac is not opened until its neck has become firmly adherent to the cervical fascia. Judd has described the operation, which was devised by C. H. Mayo, and has reported ten cases from the Mayo Clinic.[2] Cases have been reported by other surgeons in which the results of the operation, as far as the relief of symptoms is concerned, have not been entirely satisfactory. It may be noted, therefore, that an essential point in order to obtain a good result, is that the pouch should be drawn upwards as far as possible and fixed to the upper corner of the incision so that the opening points downwards. The opening into the pharynx is thus closed mechanically and food no longer tends to pass into the pouch instead of the œsophagus.

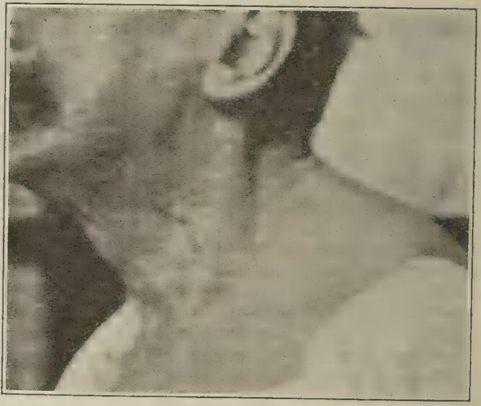
FIG. 2.



Appearance of pouch one week after first operation.

Some authorities have advocated the use of the œsophagoscope, both in the diagnosis and treatment of this condition. The use of this instrument appears to be unnecessary, and in dealing with a thin-walled sac, distended to a great size, by no means free from danger. The characteristic flask-shaped shadow, which the skiagram shows, is sufficient to put the diagnosis beyond doubt, and there is no reason for embarrassing the anæsthetist and complicating the operation by passing the œsophagoscope or a bougie into the sac. At operation the pouch may appear to originate at the junction of the pharynx and œsophagus. It has been shown by Killian[3] that actually it originates from the pharynx and passes between the oblique and horizontal portions of the inferior constrictor. His original paper on the subject contains a beautiful anatomical illustration which shows this very clearly and is reproduced in Sir StClair Thomson's well-known text-book.

FIG. 3.



Present condition of patient's neck. Wound completely healed.

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[1] Butlin : Med. Chir. Soc. Trans., lxxvi., 1893, p. 269.

[2] Judd : Surgery, Gynecology, and Obstetrics, xxvii., 1918, p. 135.

[3] Killian : La Bouche de l'Œsophage, Ann. des Mal. de l'Oreille, xxxiv., Juillet, 1908, p. 1.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF MEDICINE AND SURGERY.

A meeting of these two sections was held on Nov. 27th. At the afternoon session Dr. Robert Hutchison, President of the Section of Medicine, took the chair, and Prof. P. Bull, of Christiania, read a paper on the

Surgical Treatment of Pulmonary Tuberculosis.

He referred in appreciative terms to this historic centre of medical science, and warned those of his audience who had heard him speak on the same subject at the Glasgow meeting of the British Medical Association that he had nothing new to tell them. He passed over all historical details and referred only briefly to treatment by artificial pneumothorax, devoting almost the whole of his lecture to the thoracoplastic operations. With regard to the indications for these operations, he insisted that, before they were attempted, an effort should have been made to induce a pneumothorax. If such an induction were successful, it were better to continue treatment by artificial pneumothorax than to adopt the more radical procedure. Generally speaking, the indications for artificial pneumothorax and thoracoplasty were the same, and it was most essential that the state of the healthier lung should justify the hope that the disease in it would remain latent. Should this lung show signs of progressive or extensive disease, no attempt at thoracoplasty should be made; to do so would merely be to bring the operation into bad repute. He had, however, been amazed to find how common cases of unilateral pulmonary tuberculosis were. In the selection of cases, with special reference to the state of the healthier lung, he had found the X rays of great value, and they had been the means of rejecting cases which, on the strength merely of a clinical examination, would have been considered suitable for a thoracoplasty. Among the many indications for this treatment were recurrent hæmoptyses, and he referred to a case in which these had occurred for 17 years, and had been permanently arrested by a thoracoplasty. He did not consider laryngeal tuberculosis or unilateral renal tuberculosis as a contra-indication, and one of his successful cases of thoracoplasty had had one kidney removed on account of tuberculosis, and the patient had since been able to work as a chauffeur without signs of recurrence of the disease. The general health of the patient must be comparatively good, a much debilitated patient being unlikely to stand the shock of the operation. Before this was undertaken, the patient should be under observation for some time in a sanatorium for two reasons: (1) to note whether the disease in the healthier lung was progressive or stationary, and (2) to ascertain if recovery might not be achieved by ordinary sanatorium treatment. In his discussion of the selection of cases for this treatment, Prof. Bull touched on the necessity for coöperation between the physician and the surgeon, and he referred to the harmonious manner in which he and his Norwegian colleague, Dr. Holmboe, of Mesnalien Sanatorium, had pooled their knowledge for the good of the patient. He added that the surgeon might be better qualified than the physician to lay down contra-indications in a given case.

Technique of the Operation.

Prof. Bull expressed his satisfaction with Sauerbruch's incision and stressed the importance of making the operation as radical as possible. The first rib must be included among those resected, the first to the tenth or eleventh ribs being included, an average of 130 cm. of ribs being resected. His minimum length of resected ribs in one case was 90 cm. and his maximum 180 cm. Altogether he had taken 125 yards of ribs from his 92 patients. The most difficult part of the operation was in connexion with the apex of the lung, and in order to ensure its adequate collapse, he performed apicolysis in every case, detaching the apex of the lung from the neighbouring structures, and maintaining its collapse by a fat graft taken from the abdominal wall. Half the right breast might also be used as an apical "stopping." With regard to the comparative merits of the one- and the two-stage operation, he had come to the conclusion that the latter was to be preferred, and whereas he had had a mortality of 30 per cent. among his one-stage operation cases, the operation mortality was only 4·5 per cent. for his two-stage operation cases. As for the anæsthetic, he had largely used local anæsthesia in his earlier cases, but had gradually been converted to the general anæsthetic. He had found it necessary to give morphine and omnopon after the operation and to keep a nurse in constant attendance on the patient for some time, one of her duties being to encourage the patient to expectorate freely. The dyspnœa from which some patients suffered after the operation would seem to be due, at any rate partly, to mediastinal flutter.

Results, Immediate and Late.

Prof. Bull said he had found that the disappearance of tubercle bacilli from the sputum before the patient's discharge after the operation was of great prognostic significance, and in as many as 47 of his cases there were no tubercle bacilli in the sputum on discharge. In 27 cases this important negative evidence of recovery had existed for one to nine years after the operation. He demonstrated a patient on whom he had performed thoracoplasty, as well as numerous illustrations, the chief lesson of which was that an amazingly free range of movement of the arm on the operated side was retained. The spine showed slight scoliosis, and in female patients the breast on the operated side pointed somewhat outwards. But these changes were trivial, and a casual glance at the front view of the patients would hardly give a clue to their having undergone this most radical operation. Prof. Bull was in favour of careful after-treatment in a sanatorium for three to six months and only gradual resumption of work. He was not in favour of such strenuous sport as ski-ing, but some of his patients had indulged not only in this sport, but in cycling and bathing. Prof. Bull amused his audience with an account of a patient who had lived at the expense of the community while he was ill and who, when he found himself restored to health by a thoracoplasty, felt aggrieved because it had robbed him of his claim on the community for sustenance. Several of the patients had been confined after the operation, undergoing labour and passing through the puerperium without complications. Of the 92 patients operated on, 46 were men and 46 were women. There were 33 deaths, nine of which were directly due to the operation. The cause of death in five of these cases was obscure, but it was probably due to flooding of the body with toxins from the compressed lung. In one case of obscure death, hæmorrhages into the stomach and small intestines were found post mortem. Some of the deaths were probably due to mediastinal flutter. In as many as 23 of the 33 deaths the cause was tuberculosis. Of the 59 survivors, 35 were rid of their symptoms, while 15 still suffered from tuberculosis. There were also nine patients about whom no definite results could yet be claimed. Altogether it might be stated that 47 of the 92 patients benefited by the operation, and it was noteworthy that the results were considerably better in the left-sided than in the right-sided cases. There were 56 of the former and 36 of the latter, and while there were only two operation deaths among the left-sided cases, there were as many as seven operation deaths among the right-sided cases. Prof. Bull also discussed the work of other Norwegian surgeons in this field, noting that 12 had performed a total of 135 thoracoplasties, among which there were 15 operation fatalities—i.e., a mortality-rate of 11·1 per cent. In conclusion, he insisted that the most important factor in the prognosis was the behaviour of the healthier lung after the operation, and that, as in the case of operations for cancer of the rectum, the operator must expect a certain number of relapses many years after the operation. But whereas in cancer of the rectum early diagnosis was essential if the ultimate results were to be good, in pulmonary tuberculosis the ultimate prognosis depended largely on a discriminating choice of patients for thoracoplasty.

Discussion.

Dr. **Clive Riviere** observed that the surgeon-physician was still an unknown entity in this country, and that when the surgeon coöperated with the physician, the latter should have the last word in the choice of cases suitable for thoracoplasty. He pleaded for careful observation of the patient in a sanatorium before embarking on this radical operation, which was an irrevocable step, whereas an artificial pneumothorax could be discontinued if it proved to be unsatisfactory. As for the choice of patients for lung collapse treatment, the ideal was to watch a case carefully from the beginning of the disease, but in his experience what usually happened was that, when first seen, the patient was already in a stage that was simply crying out for collapse treatment. He had found that, while interstitial pulmonary tuberculosis was almost invariably bilateral, parenchymatous pulmonary tuberculosis was not infrequently unilateral, and these were the cases suitable for lung collapse, provided the disease already showed a tendency to run a fibrotic, chronic course. He knew of no certain method by which the presence of pleural adhesions could be detected other than that of exploratory puncture, and he had been struck by the frequency with which comparative freedom from adhesions existed even in advanced cases. He had found it seldom necessary to cauterise adhesions in order to promote collapse of a lung, but he was greatly impressed by the value of phrenicotomy in certain cases. This operation had been performed in a case under his care, and the division of the phrenic nerve on the affected side had added appreciably to the limitation of the range of movement of the diseased lung. He had found that the condition of the heart in candidates for collapse treatment was often disquieting and that a state of general debility was a contra-indication; the patient must have a certain reserve of vitality if he was to emerge from the ordeal successfully. It was also essential that after-treatment should be prolonged.

Mr. H. **Morriston Davies** also spoke in favour of phrenicotomy which he had found beneficial not only in conjunction with an artificial pneumothorax but also by itself. He had known it to afford marked relief of persistent vomiting, and in conjunction with an artificial pneumothorax it was particularly valuable when the base of the lung remained adherent to the diaphragm. Turning to thoracoplasty, he noted that, in maintaining collapse of the apex of a lung, a live fat graft was superior to gas, and that paraffin and wax were liable to be extruded at a later date to the discomfiture of all concerned. In his last series of ten thoracoplasties he had had one operation fatality. He preferred the one-stage to the two-stage operation unless the patient was very weak, and he supplemented local with general anæsthesia, using only enough chloroform to keep the patient asleep. He used novocaine for local anæsthesia, and he had found that the injection of absolute alcohol into the nerves supplying the field of operation did much to relieve pain and prevent shock. With this system of poly-anæsthesia the patient suffered little, but it was advisable to supplement it for some time after the operation with omnopon which relieved the cough. He discussed the various methods by which band-like pleural adhesions could be divided, describing in some detail the operation with a tenotome under X ray guidance. The tenotome was used in such a way as to cut the adhesion with a sawing movement, and in one case he had found the adhesion to be so loosely slung between its two fixed points that its division was impracticable. He insisted on the resection of ribs in thoracoplasty being as radical as possible—the ribs from the first to the tenth inclusive being resected. He considered Sauerbruch's incision to be the best, and in children he recommended an axillary incision.

Resumed Discussion.

At the evening session, with Mr. **Cyril Nitch**, President of the Section of Surgery, in the chair, the discussion was resumed.

Dr. S. **Vere Pearson** expressed the opinion that in the choice of cases for thoracoplasty the indications ought to be weighed with even greater care than in the case of artificial pneumothorax. All the evidence for and against a thoracoplasty should be carefully weighed, and the decision should be finally come to only after such a comprehensive review and not on the strength of one or two signs. And in coming to a decision the physician should bear in mind the prognosis if no operation was attempted. The chances of an operation being successful might be poor, but was the outlook better or worse without an operation? He paid a sincere tribute to that great surgeon-physician, the late Prof. Saugman, and in his review of the various methods of dealing with pleural adhesions he argued that cauterisation under thoracoscopic control was a more scientific procedure than groping about with a tenotome under X ray control. He had explored the pleural cavity with a thoracoscope on nine occasions, and in two cases he had achieved considerable success in the cauterisation of adhesions according to the method of Jacobæus. He foresaw that this procedure, which he did not consider to be very technically difficult, would enjoy increasing popularity, and he discussed the methods most suitable for the prevention of surgical emphysema after puncture of the chest wall.

Mr. J. E. H. **Roberts** gave an account of a tour he had recently made of the Scandinavian countries, where he had found that the thoracoplastic operation most favoured was that in which extensive resection was practised, the ribs being resected not only to their angles, but as close to the transverse processes as possible. He emphasised the wisdom of judging the value of this operation by statistics embracing a large number of cases, and he insisted that a meticulous scrutiny of the state of the healthier lung might be carried too far, slight disease in this lung not being necessarily a contra-indication. In this connexion he had found standards vary in Scandinavia; Dr. Gravesen, of Denmark, took greater risks in this respect than did Dr. Key, of Sweden; while Prof. Bull, of Christiania, was still more exacting in the standard he set for the healthier lung. Personally, he was convinced that in some cases disease in the healthier lung might show improvement after a thoracoplasty on the opposite side. With regard to the anæsthetic used, he noted that the general tendency was to prefer general to local anæsthesia, and he had heard of several cases of serious novocaine poisoning in Sweden. Though the Scandinavian surgeons were, on the whole, practising the same technique, Prof. Bull was alone in his advocacy of apicolysis in association with thoracoplasty. Mr. Roberts insisted that after-treatment was quite as important as the operation itself.

Dr. L. S. T. **Burrell** deplored the fact that this country had been a laggard in the matter of lung collapse treatment, suggesting that a Mr. Carter was needed to dig and delve for talent in this field. He pointed out that phrenicotomy did not permanently paralyse the diaphragm, and he was not wholly in agreement with Dr. Pearson as to the simplicity of thoracoplasty and cauterisation and the frequency with which cases suitable for this treatment occurred. He stressed the fact that thoracoplasty was not a reversible procedure like an artificial pneumothorax, and he referred to numerous cases of artificial pneumothorax in which, on account of extension of the disease in the healthier lung, he had had to discontinue the injections of gas. When he had done so, the disease in the healthier lung had often become quiescent again. Such a retreat was impossible once a thoracoplasty had been performed.

Mr. Tudor Edwards described the technique of cauterisation of adhesions, and referred to observations on the blood pressure during local and general anæsthesia. He was in favour of the latter—i.e., gas and oxygen. Among the ten cases in which he had performed thoracoplasty there had been one death—on the third day after the operation. Whether it was due to embolism or heart failure he could not say.

Mr. C. F. Cuthbert described a pilgrimage he had recently made to Vejlefjord Sanatorium in Denmark and, though speaking as a surgeon, he emphasised the importance of the part played by the radiologist in the selection of suitable cases for thoracoplasty.

Summing up the salient features of the debate, Mr. Nitch commented on the unanimity with which the speakers had insisted that, before a thoracoplasty was attempted, treatment by artificial pneumothorax should have been given a fair trial. Another matter in which opinions seemed to be unanimous was that of the extent of a thoracoplasty; if it was to be undertaken it must be as radical as possible. The first rib must be resected as well as the second to the tenth or eleventh, and resection must be performed as close to the spine as possible.

Reply.

Prof. Bull, replying, traced the evolution of Norwegian medical science in relation to the outer world during the last century and a half. For about a century Norway had largely sought inspiration from England in this field, but during the past 50 years Norway had turned to Germany for much of her medical science. He suggested that the present movement in Norway towards a closer scientific union with England was not in the nature of rushing to the aid of the victors, but a natural reversion to an old and well-tried love, and he hoped that British scientists visiting him in Christiania would find their reception as cordial as his had been in London on the present occasion.

SECTION OF PATHOLOGY.

A meeting of this section was held on Nov. 20th, Prof. J. C. G. Ledingham, F.R.S., the President, being in the chair.

Evolution and Disease.

Dr. Francis Nopcsa read a paper on what he has termed "arrostic" changes in evolution (ἀρρωστία =sickliness). According to the author's definition, arrostic changes were such that when they occurred in an individual they must be considered as symptoms of some chronic or acute disease, but when they affected a phylum they did not seem to be harmful. Speaking broadly, the arrostic change in a phylum might be termed its chronic disease. The first case of "arrosty" quoted was the gigantic growth of some dinosaurs—e.g., the diplodocus. In these animals gigantic growth was associated with enormous development of the hypophyseal fossa and persistence of cartilaginous epiphyses of the limb bones, although the vertebræ were well ossified and showed dense structure. The author considered that these evolutionary changes were comparable to those which occurred in infantile gigantism in man. In this disease it was especially the closing of the epiphyses of the limb bones which was retarded while the hypophysis cerebri was greatly enlarged. An enlargement of the hypophysis was also seen in some fossil reptiles (dinocephalia). Here it was associated, not with gigantism and persistence of the cartilaginous epiphyses of the limb bones, but with tremendous thickening of the skull bones. Those covering the brain-case attained a thickness of more than six inches and their surface was very rough, showing that the thickening was due to periosteal changes. In both dinosaurs and dinocephalians the enlargement of the hypophysis cerebri was accompanied by a change of food which was clearly indicated by the form of the teeth. Since a change of the food of an animal might quite well affect its supply of vitamins, and since the vitamin supply would almost certainly affect the function of the ductless glands, it was possible that in both cases the change in the vitamin supply was the cause of their differing osteological changes.

The second arrostic change concerned changes observable in lung-breathing vertebrates not yet fully adapted to life in water. In those groups of reptiles which were ancestral to ichthyosaurians, plesiosaurians, and mosasaurians, and in the ancestors of whales there occurred a decided osteosclerosis and a remarkable periosteal thickening of the ribs. This vanished when the descendants of these groups became fully adapted to marine life. In the latter stage all these animals had huge well-developed lungs enclosed in a pleural cavity, and capable of very strong dilatation, and frequently also there existed retia mirabilia near the ribs and vertebræ. Considering that among other factors repeated stoppages of the air-supply could affect the bone marrow to such an extent that giant cells got into the blood, and considering further that many other factors could produce hyperplasia of the marrow followed by aplasia (e.g., benzol injections) the author felt induced to compare the osteosclerosis and pachyostosis of incompletely adapted marine vertebrates to those bone changes that accompanied leukæmia, a disease which was produced by hyperplasia and subsequent aplasia of the bone marrow. In contrast to human pathology, where leukæmia invariably led to death, the similar process in non-adapted marine vertebrates apparently healed in the history of their phylum. The healing might be due to the function of the large lungs in providing the necessary supply of air and the function of the retia mirabilia in preventing a hyperæmia of the marrow. In the well-adapted marine air-breathing vertebrates it was found that the ribs, instead of being thickened and osteosclerotic, were of normal thickness and of a highly spongy nature. The structure of the limb bones was also spongy, but there was no medullary cavity. These differences suggested that the periostitic thickening found in the ancestors of these groups disappeared, and that the bone marrow redeveloped in their descendants. Instead of redeveloping, however, in the medullary cavity (which in the meantime had been filled with bone), the marrow seemed to have developed equally in all those bone lacunæ which had persisted during the osteosclerotic phase.

Dr. Nopcsa pointed out that sea-cows were the only animals which seemed to form an exception to these conclusions. These animals were highly adapted to marine life, had well-developed organs for swimming, large lungs, and strongly developed retia mirabilia, but they had retained the pachyostosis and osteosclerosis. In some genera, as in the Polar rhyntina, the ribs showed an extraordinary thickening, and in other genera of this group this malformation extended even to the skull bones. An explanation of this exception could be found in their diet, for alone of all the marine air-breathing vertebrates the sea-cows feed on algæ. All algæ, and especially the circumpolar brown algæ, contained a high percentage of iodine. Experiments on dogs had shown that the amount of iodine in the thyroid gland increased if the animal was fed on an exclusively vegetable diet. In cases of athyroidism, thyroid extract, apart from its other activities, accelerated the formation of bony tissues. It was possible, therefore, that the peculiar diet of the sea-cows might well have an effect on the thyroid organ and might explain the persistence of the osteosclerosis. The author considered that besides the gigantism of dinosaurs and the osteosclerosis of the primitive air-breathing aquatic vertebrates, it was probable that the formation of horns and antlers would come under the heading of "arrostic changes," but in this connexion further study was required, although many characters could be discerned which associated these structures with pathological neoplasms. Some of these have been indicated in Dr. Nopcsa's book, "Die Familien der Reptilien" (Berlin, 1923).

Dr. **Oliver Heath** read a paper on the

Meaning of Fever.

His thesis was based on three main contentions—namely, (1) that the exciting cause of fever is the using up of antibody by the bacteria; (2) that the purpose of the change, indicated by the systemic symptoms of malaise and anorexia, as also of the specific immunity response, is directed towards the economy of the body energy, and (3) (the most important) that the purpose of the rise of temperature is to accelerate the production of antibody, either normal or specific as the case may be.

Taking typhoid as an example, Dr. Heath conducted experiments upon himself, by submitting himself to injections of known and carefully calculated doses of typhoid vaccine. The results of such experiments enabled him to draw certain conclusions, which he grouped under two separate headings: (1) the cause of a fever, and (2) the purpose of a fever. In his opinion, the direct cause of a fever, in a normal subject, was the using up of antibody, while bacteria played a secondary rôle. The mere presence of bacteria in the body—e.g., in a boil—did not necessarily cause fever, it was not until the bacteria came into contact with the blood fluids circulating through the lesion, or with the blood-stream, that fever occurred. It was known to laboratory workers that if, say, staphylococci were mixed with normal serum, or typhoid bacilli with a typhoid immune serum, the bacteria would absorb or render inert the antibody previously present in the serum. That effect could also be shown in vivo, for an experiment upon himself showed that the subcutaneous injection of 2000 mills. caused fever lasting 20 hours, with a hundred-fold decrease of bactericidal power in the blood. We have next, he said, to expand this idea to cover a fever such as that of the first week of typhoid before the appearance of specific immunity. Further experiments showed that a series of vaccine doses increasing daily from 50 to 600 mills. caused an intermittent fever slowly rising to the seventh day. On the fifth and sixth days fever was continuous, and the bactericidal power, twice tested, showed a decrease. This, he believed, represented the conditions in the first week of typhoid with a continued supernormal temperature and a continued subnormal bactericidal titre. The fever reaction was therefore a manifestation of reparative activity on the part of the blood tissue, damaged by depletion of antibody.

Accepting the depletion of antibody as the cause of fever, a problem arose in connexion with the immune subject: how did fever continue after the immunity had been raised considerably above normal? Experiment showed that where ten doses of vaccine were given, a definite level of immunity was established, which remained the same for two months, but was falling at six months, so that the old normal level was replaced by what might be called the new "immune normal," and this, barring disturbances, remained stationary for some time. Fever occurred only after doses, and with it there was a dip in the antibody content of the blood. Therefore some depression in the blood titre below this new "normal" was an essential factor in the causation of fever. In applying these observations to a case of typhoid fever, one could picture on one side the patient's reactive forces working to establish this new "immune normal," and on the other side the bacilli using up antibody at a rate which prevented its attainment. Just such a position of balances was very strongly suggested by the evidence of titre demonstrable during the fastigial period of typhoid, and records covering the defervescence very commonly showed results affording support to this view. If this view were accepted, it was reasonable to suppose that the cause of fever in the fastigium was still the using up of antibody.

Dr. Heath said that a consideration of the purpose of fever resolved itself into a study of the several events of the reaction, which he dealt with in some detail. Briefly summarised, the purpose of fever is to repair the damage caused to the blood equilibrium by depletion of antibody. This damage excited reactive impulses which (1) controlled local inflammation and rate of absorption; (2) inhibited normal activities and freed energy for defence; (3) in place of the normal defence process of local inflammation and a functioning body, this reactive impulse started two (abnormal) defence processes, which formed fresh antibody, and at the same time raised the temperature to accelerate its formation. Lastly, where specific immunity was exhibited, this enabled the patient to use his energy in greater comfort and in more economical fashion. If this thesis were accepted, the following practical conclusions should be drawn. (1) Vaccine during the fastigium of typhoid would only hinder the patient, while (2) vaccine during the first week of a mild typhoid would probably increase the immunity response; (3) the exhibition of antipyretic drugs should be put under the head of malpraxis; (4) the severity of the systemic symptoms of malaise and anorexia increased with the approach of the blood titre to zero, indicating rest of the whole body and abstinence from food; and finally, (5) it was possible, on clinical grounds alone, by observing the systemic symptoms, to form an approximate estimation of the state of the patient's immunity.

Papers were also read by Dr. E. E. **Atkin** on Cultural Characteristics of the Different Types of Meningococci, and by Dr. J. A. **Arkwright** on the Characteristics of Certain Cultures Sensitive to Bacteriophage.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.

THE NERVOUS CHILD.

A MEETING of this Society was held in the rooms of the Medical Society of London on Nov. 29th under the presidency of Mr. R. C. **Elmslie**, F.R.C.S.

Dr. H. **Crichton Miller**, in introducing a discussion on the subject of the nervous child from the psychological standpoint, said those who were dealing with education in any shape must never let go of the fundamental conception that they were supervising a child who began life as an extra-social animal, and who had a long, tedious, and difficult pilgrimage from the outskirts of society in his efforts to reach its centre; and in that pilgrimage the child was called upon to make numerous new adjustments. In doing this he often fell behind or was lost. Our social life had become so complex and artificial that it was difficult to remember the complete simplicity of primitive life or to realise the actual fundamentals in the development of childhood and adolescence. Much of school life was also artificial and complex; whether it was necessarily so he would not stay to argue. Those concerned with the child had to watch it in its various phases, see how to get the most for it, and judge whether it was falling back. Many children entered the world "problem-children" from the very beginning, and no sort of educational environment would ensure a smooth pathway for them; they were mal-equipped for life's struggle. This was such a wide subject that he passed on to consider the case of the child with the normal equipment, who, given a fair environment and a decent chance, would develop into a psychologically and physically mature adult. Medical men in his own specialty were continually encountering nervous wrecks in adult life, whose wreckage could be traced back to a time in their development when they began to go off the lines. It was necessary to face the hideous fact that the teacher and the school would be beaten every time by the parent and the home; the former had not the last word, they could only do their best, and leave the rest. The child came to school with some of his development already achieved, but sometimes this was very little. At 7 or 8 years some of the shackles of the maternal magnetism ought to have been cast off and the child should be commencing to move with some independence, ready to get away from the fulsome admiration and protection of its mother. But some were far from doing so at that age, and that might be urged as a reason for not sending children to a boarding school so young. If the maternal protection were cut off too young a breakdown of some sort was to be expected; he showed he was unable to be independent of many different morbid reactions. A boy entering a public school at the age of 13 or 14 would be expected to have some independence, some aspiration after growth and development, and a readiness to take the consequences of his own actions. But, again and again, that was not so, the emotional development had been retarded. Inquiry showed, very often, that the father, instead of being a source of inspiration, had been a source of terror, and that the mother held on tenaciously to her emotional domination of the child. If at 14 a boy was still "mother's darling," it was useless to expect from him anything like a normal reaction to his social environment. This latter was largely a question of feelings of inferiority and of superiority. Children were naturally anxious to obtain a status in the eyes of their associates. Some tried to do it by "showing off," some by "bossing" and by violence, some by getting ill, some by becoming criminals. In many neuroses of children the dynamic motive was to acquire status in their social group, the school, and the root of this motive was a keen sense of inferiority, due to the fact that the world into which he had been projected was, largely, an adult world. The child who made good adjustments accepted this inferiority and succeeded. Those who did not sought to compensate by seeking a superiority by morbid means. The conflict between the attempt to assume superiority and the consciousness of inferiority produced the "nervous temperament."

With regard to the basis of sex, there was no question that the sexual life of the child was of enormous importance. He referred to four aspects of it. The first was enuresis nocturna, which he regarded as one of the most interesting symptoms in the whole of medicine. He would not encourage the use of electrical methods nor the passage of sounds, but the physical element depended on certain endocrine dysquilibria, probably associated with the pituitary and the thyroid. Many cases were cured by thyroid treatment alone. A second factor of great importance was auto-suggestion. The child who did this tended to be terrified at the prospect of a repetition, and this fear sufficed to perpetuate the act. A third factor was hetero-suggestion, the preparations at night with the waterproof sheeting and the other ritual connected with it. These children brought with them the symbolism of the cradle; they were victims of mother-traction. Scolding convinced the child that he was in the midst of a social scheme for which he had no use and which was unjust to him, and he therefore almost invariably turned to acts of revenge. With regard to masturbation, it was most important to keep the emotional atmosphere away from the whole subject. The solemn and sacred attitude of headmasters, chaplains, and others towards these delinquents was quite wrong, and it was very seldom their methods did good. The habit must be checked, but great harm was done to the child's character. It must also be remembered that every boy and girl passed through a phase of potential homo-sexuality; and when active homo-sexuality was found in a school child it merely meant that a smouldering fire had been fanned into a flame. He did not say schools should continue to be exposed to such. The adult pervert in this respect was quite a different proposition. Boys and girls so afflicted should be treated with a certain openness and generosity, less with the emotional lever, and more with that of psychology and biology.

Dr. H. C. CAMERON dealt with the subject from the physical side. The physical symptoms which commonly accompanied nervous exhaustion, he said, were most strikingly noted in the muscular system; there was a marked amyotonia of all the skeletal muscles, as shown in the lax, stooping stance. (He illustrated it by lantern slides.) It was especially manifested in the antigravity muscles. Standing with feet well apart, the child so balanced itself that as little muscular effort was expended as possible. This caused definite lordosis, and the abdomen was unduly prominent, with a compensatory curve in the cervical region. The chest became narrow, and the ribs descended steeply. The skeletal muscles also showed a loss of vasomotor tone, and flushing and paling were readily produced. The child's appearance evoked parental alarm, yet commonly there was no true anæmia present; it was rather a fault of blood distribution. Syncopal attacks, faintness or sickness in train or bus, palpitation, and a poor exercise tolerance were common complaints in these children. Functional murmurs and cardiac irregularities led to the fear of valvular disease, and he believed this to be the origin of the "effort syndrome" of Lewis. This type of child also had postural albuminuria. He did not regard the lordosis as the primary cause of the renal congestion producing the albuminuria, but thought both were due to failure of vasomotor tone. When this faulty posture had been maintained for long there might be detected increasing evidence of enteroptosis. Attacks of abdominal pain might synchronise with the times of emotional excitement, so that appendicitis might be suspected. These children also often showed a very irregular temperature curve; excitement raised the skin temperature perhaps a couple of degrees, and when the child was cold and exhausted it was subnormal. Probably this was due to variations in the circulation through the surface and deep areas of the body. These "nervy" subjects were also very prone to catch cold, as their vasomotor defences against chill were but ill developed. A very inclusive array of terms were applicable to these children. They were said to be timid, lacking in self-confidence, dreamy, inattentive, unmethodical, unduly sensitive, tearful, sleepless, suffered from night-terrors, refused food, had incontinence of urine, masturbated, had headache, habit spasm, and cyclical vomiting.

With regard to the treatment of the underlying exhaustion, it was very important to extirpate any source of chronic infection as a preliminary. On many cases chronic infection of the tonsils was acting deleteriously. The teeth also should receive careful attention. Often the child's condition was best attacked by carefully devised gymnastic exercises, drill, dancing, and massage. The exercises and the drill should be carried out in a warm room, the children being practically naked. This also had a good effect on the mind; on the soldier his drill conduced to mental smartness and celerity. Massage had great immediate effects on muscle tone and development. There was also need for systematic rest, especially of the antigravity muscles; the prone position, resting on the elbows, was probably best. Some form of skin stimulation seemed desirable. He favoured a hot bath, followed by short immersion in a cold bath, then a return for a short time to the hot bath, the aim being to get the stimulant effect without any considerable abstraction of heat. The final act should be vigorous rubbing with a rough towel. In many of these children a want of tolerance of fat could be detected. Attempts to feed them up by generous servings of milk, cream, and cod-liver oil often resulted only in vomiting or the passage of fatty stools. But the need and tolerance for sugar was high. Care should be taken not to dilate on the child's defects in his presence, as he was morbidly sensitive to all such influences. It was possible that the primary cause of the condition in these children was a deficiency of adrenal secretion. But he could not record with certainty any success from organotherapy.

Discussion.

The PRESIDENT referred to the difficulty of producing an alert posture in children of the type under discussion. A physiologist recently told him that the area presiding over postural tonus was in some of the basal nuclei of the brain. His own view was that this postural tonus was not, in human beings, a natural thing, as one would expect it to be if the basal ganglia were the seat. He believed children learned posture with great difficulty, and this would place the centre in the higher cortex of the brain.

Dr. C. E. **Shelly** (Haileybury) agreed that these children were largely the product of the neglect and discouragement of the child by the father and the over-fastidious endearment of the mother. He also thought the nutritional environment of the child, especially in the matter of white instead of wholemeal bread and pappy foods generally was an important factor in causing the condition. Fortunately, in some schools, there was a reversion to the old stone-milled flour ; 800 boys at Horsham were now given it.

Dr. E. H. T. **Nash** (school medical officer, Heston and Isleworth) referred to the difficulty in dealing with enuresis in school life, which was made more so by the absurd punishments sometimes inflicted, such as compelling the boy to carry his soiled clothes through the school and hang them up to dry. Another difficult type to deal with was that of the child who always had cold hands and feet, and he asked as to the ultimate history of these cases. Another type was the child with phobias ; treatment of these he had found very satisfactory. These children, especially if the victims of mother-traction, were liable to become pests to themselves and to everybody about them, and every care should be taken to avoid speaking about their ailments in their presence.

Dr. L. **Fairfield** (Public Health Department, L.C.C.) spoke of the type of child in regard to whom it was wrong and cruel to compel indulgence in gymnastics, as it needed mental gymnastics before attacking the clinical side. In the amyotonia subject it was the inferiority complex which was the dominant factor, and such a child was in great need of mental sustenance for getting rid of the inferiority idea. The jealousy complex should also be kept in mind, for it was often found to be a very definite factor.

Dr. L. R. **Lempriere** (Haileybury) said that in 2400 boys in his school he had seen 154 cases of the kind under discussion. When asked whether the nervous boy was fit for public-school life, his reply was that it was the best place for him, just as, in many cases, the home was the worst. Only two of the 154 could not stay at school ; they had very acute homesickness. His statistics did not show that this type of child was on the increase ; 68 of the 154 cases turned out to be good athletes. In school life the imitative faculty was important. He did not "fuss" these boys, and he found that physical training was of great value, but he insisted on their resting two days per week. For enuresis belladonna was the only drug he had found to be effective.

The openers briefly replied, Dr. **Miller** expressing his strong objection to the giving of belladonna, which was not only a poison, but a demoralising one.

Dr. **Lempriere** was elected the new President of the Society.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

A meeting was held at the rooms of the Medical Society of London on Nov. 22nd, Lieut.-Colonel E. **Goodall**, the President, occupying the chair.

The **President** referred to the sense of loss which the Association had sustained in the death of Dr. W. Ford Robertson.

The Psycho-Neurological Clinic at Utrecht.

Prof. D. C. **Winckler** gave an address, supported by a series of slides, on Psychiatrical and Neurological Teaching at the Dutch Universities, especially at the University of Utrecht. He said the organisation of the study of neurology and psychiatry at the Universities in Holland had been a very difficult matter. The Utrecht Society of Psychiatry was established in 1871, and it organised many petitions urging proper psychiatric instruction. In 1877 it succeeded in having an enactment passed which was entitled "A Law on Higher Education." At this time there were no recognised examinations in psychiatry, and medical men in asylums were recruited from among military medical men who had returned from the colonies. Donders strongly favoured the efficient teaching of psychiatry, and the lecturer's eyes were specially opened to the need by Dr. Leidesdorff, professor of psychiatry in Vienna. In this country it was the exception to have whole-time professors, but in Holland it was a stipulation that professors should not have private practice, a wise provision in some ways, but it did not ensure that the professor was necessarily the best man on the subject. In Holland, the paying patient constituted a great financial help to the teaching schemes. The 1877 law permitted the establishment of the Amsterdam Municipal University, the Faculty of Medicine of which operated in that city.

In 1885 Prof. Winckler was nominated a university lecturer on psychiatry and neurology, and money was set aside for research. The Society of Psychiatry held a number of discussions on the need for the teaching of neurology and psychiatry by one professor. The chief opposition to this idea came from practising specialists. He showed how intimate the two subjects were, and that to place the tuition in separate hands must result in overlapping. He contended that even a skilled neurologist was not necessarily a psychiatrist ; moreover, psychiatry based only on psychology had proved dangerous, as witness Weinroth's contention, in 1882, that "All alienation reposes on sin." In many asylums the clergyman was accepted as the leader, the physician being relegated to a secondary place. Later the Society took the ampler title of "The Society of Psychiatry and Neurology," and the two departments were successfully fused. At the Utrecht University students could not be trained as specialists before passing their final examination.

It was now possible, as a result of various controversies, to retain specialism within certain limits, but he was anxious as to the future. A project was successfully started for building a clinic of psychiatry and neurology in Utrecht, but as it was to cost £50,000 some hesitation was felt, and the authorities argued that the best place at which to teach psychiatry was the asylum. This, however, was opposed by the Society, and by the Faculty of Medicine at the University, chiefly on the ground that cases of the various transient psychoses, hysteria, neurasthenia, and hypochondria, &c., were seldom seen in asylums. Matters remained stationary from 1885 to 1891, but in 1892 everything seemed in readiness for commencing the new building. However, a small mistake on the part of the architect led to a controversy between the State and the municipality, and there was a further delay.

Dr. Winckler paid a tribute to the energy and perseverance of Dr. Weilbronner, which culminated in the establishment of a new clinic. He did not survive beyond 1914, his death being sudden ; and Dr. Winckler succeeded him, becoming director of the newly-built clinic of psychiatry and neurology. It had to fill a double rôle : to secure the best possible care to nervous patients, and give them the best chance of recovery ; secondly, to give teaching in psychiatry and neurology. Here all patients were nursed on the ground floor ; the scientific installations, laboratories for photography, Rontgen rays, &c., on the first floor, and the higher floors were used by house doctors, administrative staff, nurses, &c. The lecture-room was placed between the wards on the ground floor. He described the equipment and the plan of working by the aid of some excellent photographs. The dispensary was visited by 1200 new patients per annum ; and the lecture-room had accommodation for 145 students. In the library department a special feature was the scheme for filing ready for immediate use all the photographs, micro-photographs, skiagrams, &c., taken ; and for each subject there was a definite series of slides. He showed that there exists a happy spirit of coöperation with the justiciary as well as with the other departments of the University. The average residence in the clinic was three weeks, but some patients stayed there much longer.

The President expressed the Association's gratitude to Prof. Winckler for having come so far to show the high level on which psychiatry stood in Holland.

Sir Frederick Mott said it had been his privilege to see the fine institution which Prof. Winckler directs, and on his recommendation, other English alienists visited it, and came back with a fund of instruction. When William of Orange rode into Leiden, after the siege, he asked the burghers whether they would have a university or a remission of taxation, and they chose a university. Sir Frederick Mott wondered in how many English towns such a choice would be made. In conclusion, he referred to the many-portal system of entry to the medical profession in this country, and commented on the advantages of a single State examination.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A meeting of this Society was held in Sheffield on Nov. 16th. Prof. M. H. Phillips was in the chair.

Exhibition of Cases and Specimens.

Dr. J. Bride (Manchester) showed a tumour simulating complete ulcerated prolapsus uteri. He removed it from a 2-para, pregnant four months. It was situated in the interval between right labium majus and minus, and resembled an ulcerated complete prolapse. It had been noticed for 12 months and was steadily getting bigger and was removed without affecting the pregnancy. Microscopically it was a fibroma.

The President showed specimens of (1) adenomyoma of rudimentary uterine cornu; and (2) salpingo-cæcal fistula. The first specimen was removed from 7-para aged 44, who had had menstrual pain for the last seven years and recently pain not associated with menstruation. A swelling the size of a golf ball was attached to the left side of the supravaginal cervix, diagnosed as adenomyoma of Gaertner's duct. At operation it was found to be rudimentary, left cornu of uterus attached to supravaginal cervix, and also to pelvic wall. A section of the cornu showed spaces filled with dark blood, lined by columnar or cubical epithelium, embedded in "cytogenous mantle" similar to uterine endometrium. The second specimen was removed from 3-para aged 32 years. Last child was born three years ago, followed by severe abdominal pain for two weeks. Patient was admitted into hospital in November, 1922, suffering from subacute attack of bilateral salpingo-oöphoritis. Five weeks later she was seen with fixed tender swelling to the right of the uterus which was thought to contain pus. Four weeks afterwards swelling had disappeared and the patient felt much better. She was readmitted August, 1923, for dysmenorrhœa and backache. A retroverted adherent uterus and slight enlargement of the appendages were found. The right tube was firmly fixed to the cæcum, and the thickened area of the cæcum was removed with the tube. The end of the tube was found prolapsed into the cavity of the cæcum, the ostium being patent and well away from the opening of the vermiform appendix. The condition was thought to be the result of rupture of the peritubal pyocele into the cæcum.—Dr. Bride recalled a similar case in which an ectopic pregnancy had ruptured into the cæcum.—The President said that originally this case had been diagnosed as an ectopic cyst by the house surgeon.

Dr. Bride gave an account of two consecutive pregnancies with central placenta prævia and Cæsarean section. A 2-para, aged 34, was seen on Nov. 20th, 1922, three months pregnant, with history of Cæsarean section, by Dr. Fothergill, whom the speaker had assisted. The living child then delivered was still alive and healthy. On April 21st, 1923, the patient was admitted into hospital eight and a half months pregnant; she had severe bleeding with central placenta prævia. Dr. Bride decided to do Cæsarean section, delivered a living child, and at the same time sterilised the woman by removing portions of both Fallopian tubes. The child died of convulsions on the eleventh day. Nothing was found to account for the placenta prævia habit.—Dr. J. E. Stacey said that it was very rare to have recurring central placenta prævia.—Dr. W. W. King asked to what extent the cervix was dilated and criticised the second Cæsarean section, and also the sterilisation of the patient.—Dr. Fletcher Shaw said that one did not expect a Cæsarean scar to stand difficult deliveries in future pregnancies.—Dr. Bride said that the cervix was only slightly dilated; he did not consider possible rupture of the old scar. At operation the old scar could hardly be seen.

Dr. H. Clifford (Manchester) described a case of full-time ectopic gestation. Mrs. F. was admitted to hospital on Nov. 30th, 1922, with a history of amenorrhœa since February, 1922. Fœtal movements were active till two days before admission. The fœtus appeared to be full-term, fœtal limbs were rather prominent, the head high up and in R.O.P. position. No fœtal heart sounds were heard nor movement felt. The cervix was protruding from vagina; presenting part could not be definitely felt. Radiographs gave no assistance; the temperature was slightly raised; the cervix was cleansed and replaced and supported by a ring pessary. Labour did not come on and the patient was discharged at her own request on Jan. 5th, 1923. She was readmitted on the 26th when the fœtus was in the same position, and the temperature was slightly higher. Bougies were inserted into the cervix on two occasions, but could only be pushed 3½ inches. Temp. 102° F. and pulse 120. On Jan. 29th and Feb. 4th the patient had 4-minim doses of Dr. Jenkins's stock residual vaccine.[1] On Feb. 14th Dr. Clifford opened the abdomen and found a full-term macerated fœtus lying in a sac with placenta almost entirely attached to outer abdominal wall. This was stripped off without bleeding; the membranes were not removed and the cavity was drained and irrigated by Carrel Dakin's method for three weeks. The cavity rapidly became smaller, and six weeks after operation there was a sinus 1½ inches long. Inquiries afterwards revealed the fact that in March, 1922, the patient had severe abdominal pain with vomiting followed a little later by hæmorrhage lasting five days. Afterwards she had considerable abdominal pain, and in May consulted a surgeon who thought she had had appendicitis. Dr. Clifford considered that the condition was very difficult to diagnose.—Dr. Fletcher Shaw and Dr. D. Dougal agreed with him.—The President also agreed, but pointed out that a dead fœtus is not retained long in utero.—In reply, Dr. Clifford said that it was sometimes very difficult to diagnose fœtal death.

Dr. S. B. Herd (Liverpool) described two cases of encephalitis lethargica associated with pregnancy: (1) Primipara aged 24. No history of previous illness. Pregnancy normal up to thirty-sixth week. The patient then had headaches, albuminuria, and slight œdema of the ankles. She had treatment and showed signs of temporary improvement. A week later she had severe headaches and a fit. Admitted to hospital: Blood pressure, 130 mm. of Hg; albuminuria, 3 g. per litre. No uterine contractions. The patient had six fits in six hours following admission—apparently typical eclamptic fits. Next day a living child was delivered. Later in the day rhythmic clonic contractions of jaw muscles commenced. The temperature was slightly raised. The patient was restless and confused, and at the end of five days, as she was becoming worse, was transferred to another hospital, where she died on the twentieth day after delivery. She had nystagmus, ptosis of upper eyelid, and weakness of facial muscles. Post-mortem diagnosis of encephalitis lethargica was corroborated, and no evidence of toxæmia was found. The second case was that of a primipara aged 28. Healthy up to the thirty-fifth week of pregnancy. On admission the patient was restless and excited, and there were incoördinated clonic movements of head and limbs present during sleep. Reflexes normal. Albuminuria, 2 g. per litre. Chorea gravidarum was diagnosed and treated with parathyroid extract, calcium lactate, and sedatives. On fourth day after admission the patient was delivered of a still-born child. The temperature rose to between 100° to 102° F. Diplopia noticed on following day. Delusions, restlessness; became worse, and was transferred. Diagnosis of myoclonic lethargica encephalitis was made. The patient was slowly recovering—four months later—but complete recovery was not expected.

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[1] Brit. Med. Jour., April 15th, 1922.

Dr. J. Chisholm recalled one case in a 2-para with marked clonic movements of abdominal walls with symptoms of internal obstruction. Cæsarean section was performed; no obstruction was found and movements continued afterwards. The patient was dull and apathetic, but recovered. The child also had lethargic encephalitis. Dr. Chisholm mentioned another case in a five and a half months' pregnancy diagnosed as pernicious vomiting at first. Though labour was induced, the patient died. She had nystagmus also.

Dr. Fletcher Shaw read a paper on the

Advantages and Disadvantages of Supravaginal Hysterectomy and Panhysterectomy.

He said that some gynæcologists believed panhysterectomy should be done whenever the uterus had to be removed, while others believed that supravaginal hysterectomy was the better operation for many cases, though they would probably always do panhysterectomy if the cervix was badly lacerated. In a period of 18 months he had had three patients in whom carcinoma of the cervix occurred after supravaginal hysterectomy, and his object in bringing the subject before the Society was to see if other gynæcologists had had any similar cases. Although these three cases were seen in a period of 18 months, they were the only ones he had ever had, and so far as he knew none of his colleagues at St. Mary's Hospital had had a single case, so that the occurrence after supravaginal hysterectomy was very rare and it was probably merely a coincidence that he should get these three in so short a period. If that proved to be the case he still thought there was a distinct use for supravaginal hysterectomy, as it was a much quicker operation and caused less shock to the patient and, moreover, did not entail the opening of the vagina, which, no matter how carefully cleaned, was potentially a septic passage. In a consecutive series of supravaginal hysterectomy and panhysterectomy he found the mortality higher after panhysterectomy, and in the investigation of the convalescence of a consecutive series of both types the patients after supravaginal hysterectomy had, on the whole, a smoother time than those in whom the complete operation had been done. He still thought supravaginal hysterectomy was useful in nulliparous women, but panhysterectomy should always be done where the cervix was badly lacerated or in any way diseased.

The President said that he did not remember seeing carcinoma of the cervix after subtotal hysterectomy, but he had removed cervices for discharge. He believed that panhysterectomy was the better operation in all cases.

Dr. W. W. King showed a specimen of carcinoma of the cervix which he had removed. The patient had subtotal hysterectomy in 1919 for fibroids. In 1923 she had bleeding for three months, and the cervix was found carcinomatous. He recalled another case in a nullipara who in 1911 had gonorrhœa. In 1918 the patient had a pelvic abscess drained; in 1920 had subtotal hysterectomy for bleeding, and six to eight months later had ineradicable carcinoma of the cervix. He believed in total hysterectomy in multiparæ, and subtotal in nulliparæ.—Dr. Bride said that in a case of a nullipara, he had done a panhysterectomy and found an early carcinoma of the cervix.—Dr. Chisholm mentioned a case who had had a subtotal hysterectomy 25 years ago and who had bleeding for two months, and was found to have ineradicable carcinoma. She had had one child and one miscarriage.—Dr. Clifford did not remember a case of carcinoma of the cervix occurring after subtotal hysterectomy in his practice. He said that it was so rare that it hardly affected the difference in the mortality rate between the operations of subtotal hysterectomy and panhysterectomy.

ULSTER MEDICAL SOCIETY.

A meeting of this Society was held on Nov. 22nd, Prof. W. St. C. Symmers, the President, being in the chair.

Mr. Andrew Fullerton read a paper entitled

Observations on Unilateral Diuresis.

He described a continuation of some observations on unilateral diuresis which he presented last year before the Congress of the American College of Surgeons, held at Boston. A small irritating calculus in the pelvis of the kidney, he said, may give rise to a unilateral diuresis so definite and striking as to confirm the most casual observer. The flow from the sound side may be correspondingly diminished, and the specimen so concentrated that a copious deposit of urates is rapidly precipitated. In tubercle of the kidney an exactly similar state of affairs is present in the early stages. A further example was furnished by unilateral pyelitis. In cases with little involvement of the parenchyma of the kidney the picture closely resembles that seen in stone in early tubercle. In stone and pyelitis a rapid return to the normal occurs when the cause has been removed. In calculus and in the early stages of tubercle the diuresis is what may be termed acute. When structural changes have occurred in the kidney the specific gravity is still diminished, but by degrees the flow of urine becomes less and less, until finally all the work falls on the sound kidney. The term chronic might be applied to the diuresis in these cases, but when the flow becomes diminished it is not strictly applicable. The specific gravity of the urine in the affected side was likely to be low in the following conditions: renal calculus, tuberculosis of the kidney, unilateral pyelitis, tumours of the kidney, congenital cystic kidney (when the process is more advanced on one side), hydatid cyst of the kidney, hydronephrosis, movable kidney, certain cases of renal pain, and in wounds of the kidney. Statistics were given of the results of examination in over 500 cases. Mr. Fullerton brought forward this subject to emphasise the value of a sign that might help in diagnosis when the surgeon was deprived of more accurate methods.

Dr. F. C. S. Bradbury demonstrated a method of

Estimating Urea in Urine,

based upon the principle that if a gas is liberated within an apparatus of constant volume, the resulting increase of pressure is proportional to the amount of gas liberated. In this method the ordinary hypobromite reaction is utilised to liberate nitrogen from a fixed volume of urine, and is carried out in the usual manner by placing the urine in a small test-tube within a bottle containing the reagent, so that by tilting the bottle the urine and reagent can be mixed at will. The bottle is provided with a perforated rubber stopper into which is pressed the stem of a manometer such as forms part of a sphygmomanometer outfit of the aneroid pattern. The air space within the apparatus has a complex value, being the capacity of the empty bottle minus the amounts of caustic soda, bromine, and urine added; minus the volume of the glass composing the bromine tube and the urine tube; minus the volume of air displaced by the stopper of the bottle; plus the air space inside the manometer; plus the potential air space in the reagent due to its power of dissolving nitrogen. It is thus not easy to standardise the apparatus so that it shall have a constant air space, but Dr. Bradbury finds that the air space is brought to a sufficiently constant value by adjusting the amount of caustic soda in accordance with the size of the bottle used. The reagent thus serves a double purpose—to liberate nitrogen from the urine, and to bring the air space within different pieces of apparatus to the same amount. To facilitate the use of the apparatus the urine tube is marked at a level corresponding to 5·0 c.cm., and the bottle is marked at a level corresponding to 177 c.cm. less than its total capacity. By choosing this particular value for the amount of caustic soda (in conjunction with a 2 c.cm. tube of bromine), and using 5 c.cm. of urine, the reading of the manometer in decimetres expresses the percentage of urea in the urine, the reading being taken as soon as the reaction is complete, without waiting for the apparatus to cool. A series of 73 estimations controlled by the urease method of urea determination showed the average error of the manometric method to be 3 per cent.

CORK UNIVERSITY SCIENTIFIC AND MEDICAL SOCIETY.

MEDICAL SECTION.

Exhibition of Cases and Specimens.

THE opening meeting of the session was held on Nov. 6th, with Prof. C. YELVERTON PEARSON in the chair.

Dr. M. CAGNEY showed a case of mitral stenosis with aortic incompetence and pericardial adhesions, which was remarkable for the almost negligible rheumatic history in comparison with the extensive cardiac damage. Prof. D. T. BARRY demonstrated pulse records of this case, which showed a pulsus alternans which was not appreciable by palpation of the radial pulse.

Dr. J. B. HORGAN described, with specimen and X ray photographs, a case of

Right-sided Hypopharyngeal Diverticulum

in a male aged 32. There was a history of dysphagia lasting over two years, with regurgitation half an hour after food, and marked inanition. A slight swelling was present at the right side of the neck, and the œsophagoscope passed readily into the pouch, and it was only by employing a small tube and using pressure that the instrument could be passed beyond the pouch into the œsophagus, which was normal. The patient was fed liberally by a Hill's feeding-tube for two days before operation, which was performed under general anæsthesia administered by laryngeal intubation, the incision being made from the hyoid bone to the right sterno-clavicular articulation in front of the right sterno-mastoid. The base of the sac was clamped and the sac removed, its opening being closed by three layers of chromic gut suture, and the wound packed with gauze round a drainage-tube. Recovery was uneventful, swallowing being quite well performed when the Hill's tube was removed nine days after operation.

Prof. PEARSON presented a case of

Pyometra Due to a Suppurating Fibro-myoma.

The interesting point about the case was that manual removal of the placenta had been performed on the patient a year before after a difficult labour, and at that time the obstetrician had noticed no intra-uterine fibroid. When the patient came under Prof. Pearson's care there was great uterine enlargement, with pyrexia. A few days later some two pints of pus containing *Staphylococcus aureus* were spontaneously evacuated from the uterus, and on examination the tumour was felt blocking the internal os, where it acted as a ball valve. Pan-hysterectomy was performed after douching the vagina and packing the vagina and cervix with gauze. Recovery was uneventful, though previous to operation the patient's condition had been very bad.

Dr. P. KIELY demonstrated two cases of successful use of

Radio-therapy for Rodent Ulcer.

In one of these cases, a large rodent ulcer involving the bridge of the nose, inner canthus of left eye, and both lids of the right eye, considerable improvement had taken place. He emphasised the need for patience, as even in apparently hopeless cases involving deeper structures the X rays would bring about marked improvement. Photographs were shown of the patients before and during treatment.

Dr. R. C. CUMMINS demonstrated a case of

Amœbic Liver Abscess,

with partial right-sided pyo-pneumothorax. The patient had been on active service in India, Egypt, and Mesopotamia, and had suffered from malaria, but had never suffered from any intestinal symptoms except occasional slight diarrhœa. There was thus no dysenteric history. Amœbæ were found in the copious sputum, along with various catarrhal organisms. The condition was treated with emetine bismuth iodine, 1 gr. daily, for ten days, with weekly injections of a vaccine prepared from the sputum. After an intermission of a week a further course of emetine was given and symptoms cleared up completely. The case was interesting in view of the report of investigations by the Medical Research Council in 1917 in which, after examining the fæces of 3000 apparently normal individuals, it was found that 10 per cent. were infected with *Entamœba histolytica*, and this in persons who had never left Great Britain. The importance of this possibility in explaining otherwise unaccountable attacks of recurrent diarrhœa was urged.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee 43 cases were considered and £499 15*s.* voted to 34 applicants. The following is a summary of some of the cases relieved :—

L.R.C.S.I., aged 65, who practised in London and through paralysis has been unable to work regularly. One daughter is out of employment, the second one is married, and the youngest has a post of 30*s.* a week and is unable to help her father to any great extent. The Fund gave an emergency grant of £3 and voted at this meeting £18 in 12 instalments.

Widow, aged 81, and daughter, aged 55, of L.R.C.S. Edin. who practised in Birmingham and died in 1918. Their only source of income is derived from selling eggs and from the mother's Old Age Pension. The daughter reckons to get about 15*s.* from the sale of eggs. The bungalow is their own and unfortunately was partly burnt. The estimated damage was £18 and they were uninsured. This case was voted £9 in six instalments (to the mother) and £10 towards the damages through the fire (to the daughter).

Widow, aged 26, of M.B. who practised in Wales and died suddenly in May of this year. Applicant was left penniless. Her baby was not born until July. She tried to sell the panel, but the Workmen's Medical Committee claimed to elect whom they chose to fill the vacancy. Friends helped with the funeral expenses. Applicant's late husband had only been in practice for one year and was unable to make any provision. Voted £20 in two instalments.

Widow, aged 69, of M.R.C.S. Eng. who practised in Nottinghamshire and died in 1915. Applicant lives with her daughter who, owing to bad trade, finds it most difficult to provide for herself and her mother as the applicant has no means of her own. Voted £18 in 12 instalments.

Widow, aged 62, of L.R.C.P.I. who practised in Lancashire and also acted as a ship's surgeon and died in 1902. Since the death of her husband she has maintained herself by acting as a companion and up to two years ago had a permanent appointment, but owing to her health breaking down she is now only able to take temporary employment or do needlework. During the last twelve months she has only received £10 from needlework and £20 as temporary companion. Her daughter and sister have given some assistance towards rent and food, but owing to their own slender means are unable to assist to any great extent. Applicant's rent is £26 per annum. Voted £18 in 12 instalments.

Widow, aged 46, of L.R.C.S. Edin. whose last appointment was in South Africa and where he died three weeks after landing. The War Emergency Fund helped considerably whilst the applicant's late husband was searching for an appointment and materially helped to get the South African post. Applicant is now destitute and only one daughter earning a small salary, as an actress. The applicant has been in hospital with heart trouble. Voted £5 and case to be reconsidered.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., at 11, Chandos-street, Cavendish-square, London, W.1.

Reviews and Notices of Books.

LEGAL MEDICINE AND TOXICOLOGY.

Second edition. Edited by **Frederick Peterson**, M.D., LL.D., **Walter S. Haines**, A.M., M.D., and **Ralph W. Webster**, M.D., Ph.D. London and Philadelphia: W. B. Saunders Company. 1923. Two volumes. With 334 illustrations. Pp. 2268. £5.

It is now many years since the first edition of this work appeared, and it is gratifying to see a new and thoroughly revised edition. As in the former edition, the sections have been written by a variety of authors, the whole work being supervised by two editors; but in this edition a third editor—namely, R. W. Webster—has been added. Vol. I. deals with forensic medicine, and the usual subjects included under this heading are in the main well discussed. The introduction of a chapter on the Bertillon System of Identification, profusely illustrated, is particularly interesting. The sections of this volume are written from the broadest medico-legal standpoint, with the result that at times those parts of medico-legal work in which medical men most frequently require help—namely, criminal jurisprudence—do not receive all the detailed attention which the subject justifies. This is the case, for example, in the chapter on abortion. The medico-legal importance of accidental injuries and insurance are so vast that the space allotted to them does not permit of thorough treatment, even when certain classes of injuries only are discussed. Nevertheless, the material is good, and the reader can always pass on from this book to special works dealing with these subjects. Readers are reminded that the authors are reciting American law, and that the English law, although the same in principle, may vary considerably in detail.

Vol. II. deals with toxicology, asphyxia, and the examination of blood, semen, and hairs. The analytical details for the various poisons are well described, and the methods given are practical and up to date. The tendency in some places is towards over-elaboration of detail in order to purify the poison isolated, which might result, in the case of small traces, in the failure to detect the substances in question owing to loss in the process of purification. A coloured plate of alkaloidal "changing colour" reactions is useless, as anyone who has practical experience of these tests knows, and should be omitted. It is rather unfortunate that the authors do not indicate, when alternative methods of analysis are given, which in their opinion is the most useful, and when a number of tests for a particular substance are given the reader would gladly learn which test or tests are to be regarded as specific to the substance in question. It is noted with satisfaction that in the majority of cases where a reagent is directed to be used the strength and the amount required for the test is stated, instead of vague statements such as "dissolve in soda," which so commonly occur in text-books.

The bibliography is excellent, and copious references both of cases and analytical records are given. Both volumes are well indexed, and Vol. II. has, in addition, a general index.

ANÆSTHESIA.

Handbook of Anæsthetics. Second edition. By **J. Stuart Ross**, M.B., Lecturer in Practical Anæsthetics, University of Edinburgh. Edinburgh: E. and S. Livingstone. 1923. Pp. 328 and illustrations. 8*s.*

This excellent little work has been enlarged and revised. Its character is unchanged and it still possesses the merit which originally distinguished it—viz., that it teaches the student sound general principles and their foundation rather than confusing him with a heterogeneous mass of clinical details and descriptions of apparatus. The chapter on asphyxia (anoxæmia) is particularly good, and the author has made capital use of the most recent work of Haldane and other physiologists. The general teaching is identical with that to be found in English text-books, and the traditional Scottish preference for chloroform has no attraction for Dr. Stuart Ross. In the chapter on choice of anæsthetics the advice is sound and logical, but we would like to have seen included the consideration of cases of advanced intestinal obstruction with regurgitation—a condition which, when present in very obese subjects, offers one of the most formidable problems that the anæsthetist is ever called to face. The author suggests that insulin might usefully be tried in the treatment of post-anæsthetic toxæmia. There are one or two unimportant misprints (p. 140, "there" for ether) and Trendelenburg's name is consistently misspelt. The book has no superior among those of its own size on the subject with which it deals.

Die Methoden der Lokalanästhesie in der Bauchchirurgie und ihre Erfolge. By Prof. Dr. **Hans Finsterer**, Primarius der chirurgischen Abteilung im Spitale der Barmherzigen Brüder zu Wien. Berlin and Vienna: Urban and Schwarzenberg. 1923. With 42 diagrams. Pp. 196.

Prof. Finsterer is a warm advocate of local anæsthesia for all big abdominal operations. Although sometimes he supplements local with a certain amount of general anæsthesia, he uses this technique almost exclusively in comparatively young subjects. The more extensive the operation required the more anxious is he to restrict anæsthetics entirely to those of local action. In order to get the necessary insensibility in such proceedings as resection of the stomach he has recourse to splanchnic injection, mere infiltration methods being insufficient to obviate pain and disturbance produced by interference with the mesentery. Splanchnic analgesia he carries out by the method advocated by Braun—viz., by injecting the solution into the splanchnic area from the front, after the abdomen has been opened. He prefers this to the posterior entry of Kappis and Nägeli, and is thoroughly opposed to the blind entrance through the anterior abdominal wall. The solution he employs is novocaine, usually in about ½ per cent. strength. Preliminary hypodermic injections of omnopon and of morphia and atropine are used. The chief reasons which the author gives for his strong preference for local anæsthetics for abdominal operations suggest that he has not been helped by the best forms of general anæsthesia, and also that the procedures are longer than those customary in Great Britain for identical conditions. It is the post-anæsthetic morbidity due to toxic effects of very long deep administrations and to consequent pulmonary and cardiac affections that Prof. Finsterer finds a bar to the employment of general anæsthetics. In fact, he maintains that the chief cause of mortality or of delayed recovery after serious abdominal operation is the general anæsthetic, when that is employed. Obviously, if this premise is correct, the conscientious surgeon has no alternative but to adopt local methods of anæsthesia in spite of their disadvantages, admitted by Prof. Finsterer, of requiring much more time and trouble from the operator. The author states that he has seen no instance of post-operative shock within 24 hours when he has employed local anæsthesia. Acute dilatation of the stomach, however, does occur as it does after narcosis. Psychic disturbances in the absence of general anæsthesia are entirely prevented, Prof. Finsterer states, by his two preliminary hypodermic injections. The author does not care for sacral analgesia because he regards the large amounts of solution required as providing a danger, nor is he a strong supporter of spinal injections, the effect of which does not last long enough for his purposes. His work is based on an experience of 2408 operations, of which 2186 were performed with the use of novocaine, and of these 1447 were done without any assistance from a general anæsthetic.

After general considerations of different forms of anæsthesia and their applicability to slight and to severe abdominal operations the latter part of the work is given up to detailed description of the use of local anæsthesia in various abdominal operations from small procedures for hernia to extensive resection of the stomach for malignant disease. The book is a valuable addition to the literature of abdominal surgery.

DISEASES OF THE MALE ORGANS OF GENERATION.

By KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C., Lecturer in Venereal Diseases, St. Bartholomew's Hospital; Surgeon in Charge of Genito-Urinary Department, Royal Northern Hospital and Miller Hospital. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 234. 12*s*. 6*d*.

THIS volume gives a good account of present-day knowledge of the diseases of the generative organs in man. It is not intended to be an exhaustive treatise to which the specialist may refer, but to form a guide to the practitioner. Diagnosis is fully considered and the grounds upon which prognosis should be based. Minor surgical measures are described in detail, whilst of major procedures, only the main facts are given. The author is most interesting when he writes on those subjects which he has particularly investigated, enlargement of the prostate and tuberculous infection of the urinary tract. Throughout the book there is a commendable absence of extreme views. Thus the operations of vesiculectomy and vesiculotomy are advised only when the patient's health is seriously affected by the disease, whilst the restricted possibilities of orchidopexy are stressed. We note that the author regards inversion of the sac in chronic hydrocele as an uncertain operation, and rightly so. More emphasis might have been given to this view, as also to the fact that injection of a hydrocele with irritants not only frequently fails to cure but also may give intolerable pain.

The practitioner who is guided by the recommendations in this book will not go far wrong.

STUDIES OF THE ATOM.

The A B C of Atoms. By BERTRAND RUSSELL, F.R.S. London: Kegan Paul, Trench, Trübner and Co., Ltd.; New York: E. P. Dutton and Co. 1923. Pp. 175. 4*s*. 6*d*.

The Structure of the Atom. By E. N. DA C. ANDRADE, D.Sc. Lond., Ph.D., Fellow of University College, London; Professor of Physics in the Artillery College, Woolwich. London: G. Bell and Sons, Ltd. 1923. Pp. 314. 16*s*.

THE alphabet being the key to a language we cannot do better than recommend the A B C of atomic physics before its complex language is tackled. In Mr. Bertrand Russell's book we have a very good A B C—simple, lucid, and a little diverting in places. But the diversions are so cleverly introduced that they often serve the useful purpose of convincing the reader that some of the wildest flights of imagination on the part of the physicists are not really so strange after all. How wonderful a stride the modern explorer in atomic constitution has made is brought vividly home to the reader when he realises that practically the whole of the A B C of the subject has been discovered in the last 25 years. Mr. Russell's book is one that the reader may finish at a single sitting; but he will go back to this A B C to renew acquaintance with many a felicitous passage. He will no less surely want to go on with the subject after his initiation, and he can hardly do better than take up Dr. Andrade's book, which is a critical exposition of the facts and theories of atomic construction as conceived to-day, and is chiefly remarkable for the masterly way in which the matter is handled. The author knows where to go for his facts and where the fruitful theories lie, and he marshals them together, not only in order to show how wonderfully they bear each other out but also to declare their limitations. It is one of the surprises of the theories concerning energy and atom building that, while very successful within a restricted range, they become irreconcilable when called upon to coördinate the phenomena of free space as well as those of matter. It is here that Dr. Andrade holds the scales evenly before the reader, not hesitating to speak of those divergences, though, as an experimenter himself, showing the keenest pleasure in recording the close agreement that often occurs between theoretical prediction and experimental findings. Dr. Andrade has dedicated his book with modesty and grace to Sir Ernest Rutherford. We can assure him that the "presumptuous hope" he expresses in this foreword is fulfilled in the succeeding chapters of his book.

HANDBUCH DER KINDERHEILKUNDE.

Vol. I. Edited by Prof. M. VON PFAUNDLER and Prof. A. S. SCHLOSSMANN. Leipzig: F. C. W. Vogel. 1923. Pp. 962. 40*s*.

THE first volume of this work promises that when the three volumes are completed the reader will be possessed of a complete system of medicine as it applies to children. The general arrangement is good, and the scope is vast, covering every aspect of the subject from baby-linen to the chemistry of the lipines. The less abstruse portions of the book are perhaps the least attractive, illustrations such as those on p. 104 being more reminiscent of an out-of-date stores catalogue than of a modern work on medicine. On the other hand, the articles by Dr. Rudolph Neurath, of Vienna, on the physiology and pathology of puberty, and Dr. Carl Hochsinger's article on rickets will find interested readers in all countries. The bibliography given at the end of each section will be found particularly useful to those who have been latterly deprived of German literature. The book is adorned by many coloured illustrations and modern photographs which are admirably reproduced.

THE MIND IN ACTION.

A Study of Human Interests. By GEORGE H. GREEN. London: University of London Press, Ltd. 1923. Pp. 168. 3*s*. 6*d*.

THIS book explains in every-day language modern ideas about mental processes. It is peculiar inasmuch as the writer adopts the psycho-analytical view of these processes, except in regard to suggestion and auto-suggestion, where he becomes enthusiastic about Mr. Coué, and yet so thoroughly respects the taboo that sex does not find mention. A list of symbols that "stir great numbers of people" fills six lines, but the reader is left wondering what meaning they express. Some of his statements embody the uncritical acceptance of doubtful propositions, as when he says (p. 97): "The actual experience of being born . . . can be recalled in special circumstances in many cases." The matter is presented crisply and intelligibly, but the book shows little evidence of first-hand knowledge.

WHAT IS MAN?

By J. ARTHUR THOMSON. London: Methuen and Co. 1923. Pp. 244. 6*s*. 6*d*.

THE capacity of the Professor of Natural History in the University of Aberdeen for reading and thinking and writing seems to be almost limitless: in the last few years he has produced by himself a small library of very readable books with a mass of more fugitive articles to fill up odd moments. The present volume consists of a course of ten lectures on man as an organism and a social person, delivered at the invitation of the senators of the United Free Church College in Aberdeen, and intended to indicate the sort of knowledge which everyone should have about themselves. It is, as the author says, an exposition of the fundamental biological facts by a biologist who does not regard them as supreme, and the general outlook will recall Prof. Thomson's Gifford lectures on the

System of Animate Nature. He discourses in order of man's origin and early history, the development of social relations, behaviour and conduct, variability and inheritance, the struggle for existence, bodily disharmonies, and the possibilities of the future. The treatment is not profound, and he takes no very definite sides in the many controversial issues which he raises, but by references in the text and a long bibliography at the end he indicates where further discussions of the various matters may be found. The tone is mostly a cheery if rather circumspect optimism. Only on the old bugbear of the survival and multiplication of the unfit does the note of apprehension creep in. But surely, until one is quite sure, which Prof. Thomson is not, of the direction which human development is going to take—physical or spiritual—it is unnecessary to be other than cheerful about this too. There may yet be something to be said for the poor Jukes family.

HIGH BLOOD PRESSURE.

Its Variations and Control. By J. F. HALLS DALLY, M.A., M.D., B.C. Cantab., M.R.C.P. Lond. London: Wm. Heinemann (Medical Books), Ltd. 1923. Pp. 155. 10*s.* 6*d.*

THE author of this book has succeeded in getting a vast amount of information into a comparatively small space. As an introduction to the extensive literature on blood pressure the treatise is excellent, but we cannot help thinking that a more dogmatic treatment of the subject would be advisable in a manual designed for the practitioner. In the first part of the book a full and clear account of modern sphygmomanometric technique is given, special attention being paid to the auscultatory method introduced by Korotkoff. We are pleased to notice in an English text-book that the researches of Gallavardin and other French workers receive full recognition. The chapters dealing with hyperpiesis and its relation to arterial and renal disease serve to emphasise the chaotic state of modern views on this subject, rather than to simplify the problem for the busy practitioner. The author lays stress on the common mistake of relying on isolated observations of systolic pressure alone, and describes clearly the importance of the diastolic pressure in prognosis and treatment. The latter part of the book is devoted to treatment, life assurance in relation to blood pressure, and the historical aspects of the subject. A very complete bibliography is given at the end, including references to the most recent work.

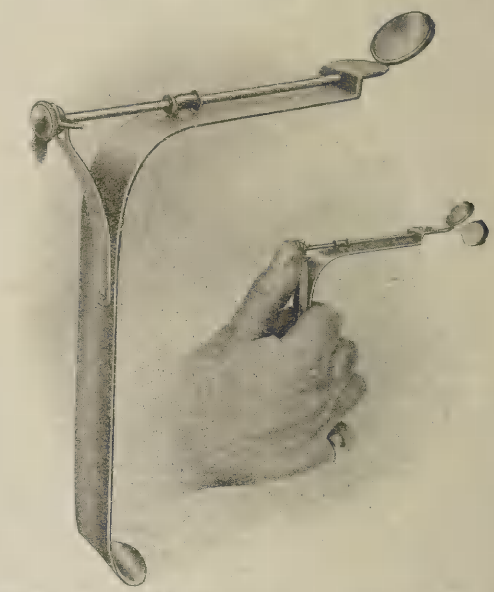
JOURNALS.

MEDICAL CLINICS OF NORTH AMERICA. Vol. VII., No. 1. London and Philadelphia: W. B. Saunders Company. Pp. 315. 55*s.*—This number, described as the Mayo Clinic Number, is entirely devoted to papers by workers in the clinic, or in the Mayo Foundation for Medical Education and Research at the Graduate School University of Minnesota.—R. M. Wilder gives a short account of the history of the discovery of insulin, its manufacture and standardisation, and a brief account of its application in the treatment of diabetic patients.—S. Franklin Adams gives a description of the food mixtures which are suitable for the treatment of diabetic patients, and a clear account of the value of the aketogenic ratio. The diabetic nomographs are printed and described.—Clifford J. Barborka describes the use of insulin in the treatment of diabetes as practised in the Mayo Clinic. The procedure in cases of severe and moderate diabetes is discussed, together with that indicated in patients with coma and those suffering from general diseases.—W. M. Boothby and Russel Wilder have estimated the effect of insulin on the basal metabolism, and conclude that it does not increase it unless the blood-sugar falls below 0·09 per cent., whereas adrenalin always increases it.—Leo L. J. Hardt and Edward G. Joseph have experimented with the kymograph under various conditions of the stomach, and the results are well worth reading.—A. H. Logan describes a successful treatment of three cases of ulcerative colitis with tr. iodine 10 drops three times a day. These three cases were completely cured, but many other cases were quite unaffected. The opinion is offered that it produces its effect by means of a general metabolic effect and not by a local effect.—Philip S. Hench records a simple method of estimating the urea in the saliva of patients with urea retention. It is only necessary to collect the saliva and titrate it with a 5 per cent. solution of mercuric chloride. It is claimed that the titration figure runs parallel with the milligrammes of urea in the blood. This method should be of use in watching patients with urea retention.—Leonard G. Rowntree discusses the Muirhead treatment for chronic Addison's disease, which consists in giving 2 to 15 minims of 1 in 100 adrenalin hypodermically twice a day, 1 c.cm. of adrenalin in salt solution twice a day per rectum, and 5 gr. dried desiccated gland three times a day by mouth. Four patients made great improvement under this regime, and the results in two others are considered as very promising.—Frederick A. Willius and Walter M. Boothby discuss the condition of the heart in a long and valuable paper on exophthalmic goitre and adenoma with hyperthyroidism.—Several other papers are also of considerable interest.

New Inventions.

A SIMPLE PHARYNGOSCOPE.

THIS instrument, which consists of a tongue depressor carrying a movable mirror, has been designed to facilitate the examination of the naso-pharynx in children and others in whom examination is difficult. In use the head of the patient is steadied by placing the left hand on the vertex, and the tongue is depressed with the instrument held in the right hand, the thumb of which then presses forward the spring controlled mirror until it passes behind the soft palate. Lateral movements of the thumb-stud cause rotation of the mirror so that a view of the whole naso-pharynx can be obtained without moving the tongue depressor. The instrument is curved in such a manner that it presses with the least force upon that portion of the tongue which, on stimulation, produces the palatal reflex.



Messrs. Phillip Harris and Co., Birmingham, are the makers.

A. LOWNDES YATES, M.D., B.S. Lond.,
Birmingham. F.R.C.S. Edin.

THE LANCET.

LONDON: SATURDAY, DECEMBER 8, 1923.

DE AMICITIA.

On the evening of Thursday, Nov. 29th, over four hundred guests sat down at the Hotel Victoria, Northumberland-avenue, to celebrate the Centenary of The Lancet, and the talk was of friendship. Not merely of medical friendship, although in large measure those who were there were medical men or women, and of those who were not some admitted their youthful ambition to enter the medical profession. But of other friendships; of the increasing contact in these days between the territories of medicine and the law, of business men and women working side by side with professional men and women, of the bond between medicine and scientific thought, of intellectual alliance with other countries, not the least with France. A pleasing sense of solidarity was manifest, no one section of a motley profession preponderated; young and old were there, progressives and conservatives, seers of visions and dreamers of dreams, the scientist lying down with the empiricist. The names of those who were present are set out on another page. There were regrettable omissions of those prevented by health or urgent calls from attending, but to enumerate the names is to mention most of those who by the culture of natural gifts have attained distinction or high office in the medical world. The occasion was not one for vain-glory. Many things which were said at the gathering would be quite improper to repeat. They were little intimacies which might be passed over as kind phrases had they been other than the translation into words of an affection long manifest in deeds. For The Lancet has been for a hundred years, and will remain, a friend-made paper. Just as medicine is all-pervading, so its votaries are to be found in all classes, of all dispositions, and under all skies. And therefore the *amicitia* of which we are speaking has itself no bounds.

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THE PROBLEM OF RHEUMATIC DISEASE.

The one point clearly demonstrated by recent papers published on acute rheumatism, whether considered individually or collectively, is the urgent need for organised research upon the infective cause of the disease. Whatever may be the predisposing causes of rheumatism—and there are many—the fundamental ætiology of the disease remains obscure. This statement is without prejudice to the well-known work of Drs. Poynton and Paine, who believe with others that the *Diplococcus rheumaticus* is the cause of acute rheumatism. It would, in any case, not be enough to have identified merely the causative organism, for in order to understand the disease we must further know its mode of entry into and distribution among the tissues. We are still ignorant, for example, of the part played by the tonsils in rheumatic infections; this stands in marked contrast with what we know to be their significance in tuberculosis. The tubercle bacillus has been found in the tonsils and the general relation of the invading organism to the lymphatic system of the neck has been worked out in some detail; moreover, we know that most cases of cervical lymphadenitis of tuberculous origin are not commonly associated with the more generalised tuberculosis of the respiratory and digestive systems. If the tonsils are, as was recently affirmed by Dr. H. J. Starling,[1] the main portal of rheumatic infection—and, on the whole, there is more evidence in favour of the tonsil than against it as a portal of entry—it is difficult to see what prevents the causative organism from gaining access to the viscera and nervous system. Inflammation of the interposed lymphatic system has never been remarked as a feature of rheumatic infections, which indeed occur frequently enough in apparent independence of any tonsillitis.

Pending, therefore, the results of further investigation into the nature of the causative organism of rheumatic disease and its distribution in the tissues, clinical research is bound to be empirical. That is not to say that such work is not of value, but rather that each observer, since he is unable to correlate his observations with any established bacteriological picture, is compelled to enunciate some hypothesis to account for the features of the disease as they present themselves to him. The hypothesis put forward by Dr. M. O. Raven in our present issue is that, whatever the cause of the disease or the portal of its entry to the body, once an infection has been established in a child periods of restful life of many months' duration in fresh air are necessary to obviate relapse; and further, that when the heart is implicated, complete rest in bed is required until the cessation of change in the physical signs of the heart indicates that the infective stage is closed. We agree that sanatorium treatment is indeed as important in cardiovascular disease in children as in tuberculosis. To build up the resisting powers of the body and to prevent reinfection long periods of convalescence in healthy surroundings appear to be essential, and in this country convalescent homes adapted for rheumatic children and cases of early structural change in the heart are badly needed. As to the criteria of progress it is unfortunately not always so easy as Dr. Raven seems to believe to note progress in valvular disease from auscultation. The altered quality of the murmur as an index of advancing malady is open to many fallacies. But physical signs combined with general condition will probably provide sufficient information to avoid the possible danger, emphasised by certain other observers, that the heart may be put at rest for too long. Another hypothesis, already referred to, is that of Dr. Starling, who bases it upon observation of cardiac cases in adults and children. He is convinced that the tonsils are the main portal and focus of rheumatic infection and that complete enucleation of the tonsils is therefore a valuable means by which the acute attack may be aborted and further infection prevented. This thesis finds support in the important work of Dr. W. St. Lawrence,[2] of New York, who found tonsillectomy of great avail in preventing recurrence of rheumatic fever or rheumatic pains, though when chorea was present it proved a much less effective measure. It is only fair to state that against these observations stand those of Drs. G. H. Hunt and A. A. Osman,[3] who find that in a series of 144 patients those submitted to tonsillectomy showed a greater percentage of relapse than those not operated upon, whether after the first or after subsequent attacks. A third hypothesis, borne out by these last-named observations, is that recurrence is more likely to occur after a second than after a first attack.

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[1] Guy's Hospital Reports, October, 1923, p. 388.

[2] Jour. Amer. Med. Assoc., Oct. 16th, 1920, 1035–1041.

[3] Dr. G. H. Hunt and Dr. A. A. Osman: Guy's Hospital Reports, October, 1923, p. 383.

Many other theories could be mentioned, for example, that the presence of carditis increases the liability to recrudescence of infection, and that the disease is communicable. As anyone who has worked on these or similar lines will know, the collection of sufficient material and the correct ascertaining of facts contributing to support or to contradict such hypotheses must of necessity take time; the difficulty of getting accurate news of old patients is often considerable, and the interpretation of clinical observations may be contradictory. For instance, while Dr. RAVEN considers stenosis of the mitral valve to be a clinical condition which every effort should be made to prevent, Dr. STARLING regards stenosis of the aortic valve as the most favourable development in aortic cases. Incidentally, there does not seem much ground for this latter assertion. The clinical data of rheumatic disease are, indeed, plentiful enough and lie widely scattered in time and space; from whatever aspect the problem is approached, plausible and useful hypotheses can be constructed. If a case has been made out for the existence of numbers of rest homes for the reception of sufferers from rheumatic disease, it appears equally desirable that such establishments should be regarded as offering an unique opportunity for conducting organised research, not only upon the disease but upon the cardiac lesions attributable thereto. Of recent years the investigation of these lesions has yielded less fruit in the direction of prevention than in that of therapeutics. Dr. G. A. SUTHERLAND, in the address published at the front of this issue, shows clearly some of the clinical applications of our increased knowledge of the way drugs act on the diseased heart. We ought not to be satisfied with attaining greater facilities for the relief of cardiac lesions, but should strive to obtain a view of the pathological battlefield in rheumatism at least as clear as that which we now possess in the case of tuberculosis.

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PRISON REFORM.

THE report of Lord Justice ATKIN'S Committee on the procedure of criminal trials in which insanity is pleaded raises questions which lie on the borderland of medicine and the law. Some of these are dealt with in a special article on p. 1262. The increasing interest taken by the medical profession and the public in the subject of prison administration will be further stimulated by the recently-issued report[1] containing the latest official views on this matter. The report shows an increase of 3910 in the receptions into prison as compared with the figures for the previous year, but this increase is almost entirely accounted for by a large increase in the "debtor" receptions, most of these being committed for failure to pay arrears on maintenance and bastardy orders. In some instances this failure is due to misfortune, but many cases are those of men who, obstinately refusing to fulfil their obligations, present a problem which still awaits solution. In any case, however, the number of receptions, both absolutely, and relatively to the population, is far lower than in pre-war days, although somewhat higher than in the year immediately after the armistice.

The attitude of the Commissioners towards the officials at the several prisons shows a marked improvement. It is not so long since any expression of individual views on the part of these officials was severely checked, the result being that their reports tended towards extreme aridity and formality. To-day these reports—of which extracts appear—are much fuller and more interesting; it is realised that the expression of views by these officers, many of whom have spent their working lives in the service, can do nothing but good, even if their views happen to disagree, in certain details, from those of the Commissioners. The longest extract is that from the report of Dr. M. HAMBLIN SMITH, medical officer of Birmingham, who deals with the necessity for the intensive psychological investigation of the individual offender. This necessity is also emphasised by other medical officers. It is admitted by all that there are large groups of mentally abnormal persons which are not recognised by the existing law. Many cases of delinquency are due to mental conflict and other psychopathic conditions. And it is quite obvious that prison is a wholly unsuitable place for these cases, many of which are eminently amenable to treatment. Recognition of the existence of these psychopathies does not imply that those who suffer from them are to be allowed to do whatever they please without interference on the part of society, and public opinion will soon insist upon the provision of institutional and other arrangements for dealing with these cases on rational lines. Full psychological examination of cases before they are sentenced is of the utmost importance in other ways. Only when such examination has been made can a court possess the most essential information with respect to the case with which it has to deal, and without this information treatment must be administered entirely in the dark. It is easy to understand and to sympathise with the movement for the free granting of bail, but this implies fewer cases being medically examined before conviction. The Commissioners suggest that this problem could be solved by the provision of remand homes, quite apart from the prisons—an excellent suggestion which, however, involves a question of expense. We note with great satisfaction the establishment of a scheme for the intensive study of lads sentenced to Borstal treatment. From this scheme information of scientific value should result. Local justices do not take enough advantage of the special facilities provided for psychological examination at several prisons. This matter should be taken up by some authority which is in a position to enforce compliance with its demands. Psychological examination might also do something to prevent the futile and harmful sentences of 14 days and less which are still given in more than 25 per cent. of convicted cases. With respect to probation, the report points out the need for a high standard of quality in the probation officers. Every case placed on probation is an individual problem, just as is every case sentenced to imprisonment. Probation implies consideration of the offender's psychology, yet this fact is hardly recognised. A recent committee which investigated the probation system took no medical evidence, and did not appear to recognise that the question had a psychological side. Probation officers in this country, whatever other merits they may have, are not skilled psychologists. In some American cities this matter is better ordered, and the chief probation officer is a physician with psychological training, who is assisted by an adequate staff.

The report is, in many ways, hopeful. The paramount importance of the psychological side of penal measures is gradually becoming recognised. A scheme of education, directed by eminent experts in each locality, is being initiated. As the Commissioners say, every kind of treatment tends to produce the state of mind which it anticipates. The treatment in a well-managed prison is directed towards giving each man some sense of his responsibility, both as a member of the small prison community and as a citizen of the larger world outside. And if we work in this spirit we may look forward to the future with confidence.

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[1] Report of the Commissioners of Prisons and the Directors of Convict Prisons for the year ended March 31st, 1923. H.M. Stationery Office, pp. 95, price 2s.

Annotations.

"Ne quid nimis."

WORK AT THE CAIRO SCHOOL OF MEDICINE.

WE published last week two articles from the surgical department of the Royal School of Medicine in Cairo, describing work carried out in the Kasr-el-Ainy Hospital. This school is recognised by the Royal English Colleges as having a proper academic standard and a visitor is sent yearly by the Conjoint Board to inspect examinations and the general lines of medical education. Heads of departments in both school and hospital are British, working in close collaboration with Egyptian professors and assistant professors, all of whom have British diplomas and have spent some years of post-graduate study in England. The teaching is in English although there is a certain demand for a modified system of teaching in Arabic. Mr. A. B. Ibrahim writes on bilharziasis of the ureter from an experience of 100 cases observed over a period of five years. Bilharziasis of the bladder has been widely recognised, but this affection of the ureters appears to be far more dangerous and intractable in its results. Now that treatment with tartar emetic is meeting with such success, it is of the first importance to ensure early recognition of these cases of renal colic, in which the failure of radiograms to demonstrate the presence of stone leads to a suspicion of bilharziasis. Mr. A. W. Mooro's case of arterio-venous aneurysm of the neck derives its chief interest from the opportunity offered and taken of careful histology of the healed arterial wounds. Dorrance's suture, although inferior cosmetically to intra-arterial suture, healed with formation of far less fibrous tissue, and this observation may be of help to surgeons who are increasingly occupied with the suture of blood-vessels.

HERPES AND LESIONS OF THE NERVOUS SYSTEM.

THAT many acute affections of the nervous system are produced by infections is well established, and it is also probable that in the future yet others will be proved to have a like ætiology, amongst which we may cite Landry's paralysis and possibly certain cases of myelitis. The problem of the path of invasion in all such cases is one of great interest, and is still a field in which much work remains to be done. Even in such well-understood conditions as epidemic cerebro-spinal fever the route of infection is not universally agreed, although lymphatic extension via the naso-pharynx is the conventional teaching. A like path is favoured for the virus of epidemic encephalitis. Other infections—e.g., the toxin of tetanus and the virus of rabies—reach the central nervous system by following the peripheral nerve trunks, the route being clear but the intimate mechanism debated; but even in cases where the route of approach is known there is a great deal of light to be thrown upon the cause of the localisation of lesions within the central nervous system. The recent demonstration of the neurotropic affinities of the virus of herpes by Grüter, and the confirmation of this work by many investigators, but especially by Levaditi, Harvier, and Nicolau, has given us a virus which is readily manipulated and lends itself to experimentation in this direction. Inoculation into the cornea of the rabbit generally produces keratitis, with a marked tendency for the virus to spread into the nervous system, and therein to produce results akin to those produced by the virus of encephalitis, and, indeed, it is held by a majority of workers that the two infections are traceable to one and the same virus. Prof. Levaditi is himself dealing with this theme in one of the Harben Lectures to be delivered next week, in English, at the Royal Institute of Public Health in London. Recently Marinesco and Draganesco[1] have approached some of the problems we have briefly alluded to by means of experiments with this infection carried out upon rabbits. They have found that the virus ultimately attains the central nervous system whether it be inoculated by the habitual corneal route, or into a peripheral nerve or a sympathetic ganglion. Its course is demarcated by lesions of a subacute inflammatory type in the peripheral nerves and by degeneration and infiltration in the central nervous system, and is thus fairly readily followed in histological preparations. Following out this method it has been discovered that in an infection spreading up from the sciatic nerve the progress of the changes produced could be traced to the posterior root ganglia, and thence to the posterior portions of the cord, both white matter and grey. Where the inoculation was corneal, lesions were found in the choroid, the ciliary ganglion, the ophthalmic division of the fifth nerve, the Gasserian ganglion, and finally, and most intensely in their intracerebral distribution, in the sensory nucleus of the fifth nerve. The thesis of this work, therefore, is that in the case of the herpetic virus the nervous lesions which it occasions are produced by a direct invasion of the brain or cord by way of the nerve trunks, the virus travelling by the shortest available route. The distribution of the lesions within the central nervous system depend, not upon any "elective" nature of the virus, but upon the pathway by which the nervous system is approached and will, although always diffuse in some degree, constantly show especial severity in the portion of the brain or spinal cord which is first reached. The nature and intensity of the lesions in these experimental infections vary somewhat, this variation being in accord with the acuteness or chronicity of the malady.

EVOLUTION OF THE MODERN PUBLIC HEALTH CAMPAIGN.

A VIVID and fascinating history of the evolution of public health in modern life is embodied in the five pregnant chapters of Prof. C.-E. A. Winslow's recently published book.[1] In the words of Osler, he has made "an aeroplane flight over the progress of (preventive) medicine through the ages," which will amply repay study by physicians and social workers. In the first chapter the dark ages of public health are discussed, and we see contrasted the Greek and Roman care of the body, its strength, and its cleanliness, with the post-apostolic view crystallised by St. Jerome: "Who is once washed in Christ needs not to wash again." Sanitary regulations came earlier than is usually recognised, and we note with interest that Shakespeare's father was fined at Stratford-on-Avon on two occasions, once for depositing filth in a public street, and once for not keeping his gutters clean. But improvement was very slow, and so recently as the very dry summers of 1858 and 1859 the two great national reproaches were stated by William Budd to be that "India is in revolt and the Thames stinks." In the second chapter is sketched the great sanitary awakening. There were many forerunners, among whom Richard Mead, George Baker, and Captain Cook must ever hold a high place. The influence of humanitarianism and of the Wesleyan revival was very potent in expediting reform, though Chadwick's work was actuated chiefly by exceptional realisation of the economic importance of health. Prof. Winslow accepts the view that the report of the Massachusetts Sanitary Commission in 1858, which was written by Lemuel Shattuck, and was a most masterly statement of the needs and methods of reform, owed its inspiration to the writings of Chadwick and Simon. The third chapter is concerned with Pasteur and the scientific bases of prevention of disease, while the fourth chapter details more fully the triumphs of bacteriology. In the United States the first State hygienic laboratory was established at Ann Arbor in 1887–88, the first municipal public health laboratory by Dr. C. V.

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[1] Annales de l'Institut Pasteur, vol. xxxvii., No. 8, Aug., 1923.

[1] The Evolution and Significance of the Modern Public Health Campaign. By C.-E. A. Winslow, Dr. P.H., Professor of Public Health, Yale School of Medicine. Yale and Oxford University Press. Pp. 65. 7s. 6d.

Chapin in Providence in 1888. The early utilisation of bacteriology as a means of sanitary investigation owed much to the late Dr. Hermann M. Biggs. In the fifth chapter the New Public Health is discussed. This is exemplified in the child welfare movement, the various aspects of which are summarised by Prof. Winslow. Education is the keynote of this modern campaign for public health, and the importance of district nursing and of the public health nurse in this connexion need only be mentioned. The value of the educational side of anti-tuberculosis work emerges in this aspect, and with this all will agree; but there is possibly a tendency to minimise the importance of reducing massive infection by tubercle bacilli as a means of reducing the incidence of tuberculosis. We are all at times apt to forget that the amount and the frequency of exposure to infection may be reduced below the point at which disease will be produced, even when freedom from infection cannot be secured; although with this the hygienic means for raising resistance to larger doses of infection retain their importance. The problems of syphilis and of mental hygiene are also discussed; and a most important issue is raised in the statement that if medical science is to yield the high service of which it is capable, systematic medical examinations are needed, and this service medical science can by no possibility render so long as it is limited to the alleviation of the symptoms of architecturally completed disease. In Prof. Winslow's view "it is probable that, before medicine becomes truly preventive, there must be a radical alteration in the basis of payment for medical service."

DEMENTIA WHICH FOLLOWS APHASIA.

To Leonardo Bianchi must be awarded the merit of having cleared up the confusion which for some time existed in this chapter of neurology. In a series of numerous and important publications, based on a minute study of many clinical cases, he analysed the different conditions in which the intellectual deficit of the aphasic finds an expression, and he has given a clear scheme of the various and changing relations which exist between each form of speech disturbance and the mental state. In a recent article Dr. F. Vizioli,[1] of the Mental Clinic in the University of Naples, gives a lucid and succinct account of Bianchi's work in this respect. It is first of all necessary to formulate a clear definition of the term aphasia. The name is taken to mean the speech disturbance caused by a circumscribed focal lesion in a certain region of the brain, the other regions not being affected. It is recognised that if any other kind of process exists, more or less diffused, which causes cerebral disease, disturbance of the function of speech in a more or less marked degree may always ensue. But in this case the aphasia becomes a complication or symptom and it will not be possible under such conditions to determine with exactitude what value should be ascribed to it in the interpretation of the dementic syndrome which may either follow or pre-exist. The conception of clinical entity of aphasia was first materialised by Bianchi in 1887 and developed by him in numerous subsequent publications, his two principal points of view being: (1) The true aphasic is demented because of his aphasia, but the inverse proposition is not tenable since it is devoid of scientific value and logical foundation; and (2) images of words exist as well as images of things. The clinical aspect shown by individuals affected with aphasic dementia is entirely special. In the early stages during the first and second weeks of the cerebral attack which causes the aphasia there may be present more or less strong psychomotor confusion and agitation. Generally these phenomena soon become less prominent, but may reproduce themselves at more or less long intervals and with more or less marked characteristics during the further course of the disease. Under ordinary conditions it is seen that these patients show that they still possess to a large extent images of objects, that they recognise them and their uses. If by gestures they can be made to understand a command, they perform it with sufficient precision. They rarely commit foolish actions and retain good relations with their relatives. Sometimes they have a vague consciousness of their condition and show resentment about it, but more often they remain impassively stupid and smiling. Their behaviour is usually good, and in hospital they are often eager to help in small every day duties. They know the doctors from the attendants and other patients, and are deferential to those whom they know to hold superior positions. In aphasic dementia we have therefore a distinct clinical entity which no one can deny without denying the evidence of facts or artificially misconceiving the results of observation. The main conception which dominates the mechanism of production of the demented state is that the sensory aphasic is demented because he is aphasic, whereas the inverse formula is erroneous. Three types may be distinguished according to the site of the cerebral lesion: (1) In some cases it follows a lesion of the inferior parietal lobe, and especially when this lesion affects well-educated individuals who by much study have accumulated a vast patrimony of culture which the lesion suddenly annuls. Such cases are not numerous and are recognised because other symptoms which reveal the localisation are added to the demented element. (2) Most frequently aphasic dementia follows a lesion of the auditory zone which is of the highest physiological importance in the complex mechanism of speech. (3) The third group is where there is paresis of the auditory centre through the lesion of the tracts of conduction and association. Considering the merit due to Prof. Bianchi of having isolated this clinical form and of having analysed the different conditions and the psycho-pathological mechanism by which the intellectual deficit of the aphasic becomes established and developed, Dr. Vizioli suggests that this mental condition should be henceforth known under the name of "Bianchi's disease." As Bianchi himself says, "the destruction of the region of the brain which has the function of constructing the images of words, of preserving and reproducing them as symbols of things in the external world, and their relations in the formation and expression of thought, implies a constant and profound intellectual deficit which is true dementia, even though the individuals who are affected with it are able to show a well-balanced and quiet demeanour and appear to recognise and even criticise the world which environs them."

THE BONE MARROW AFTER SPLENECTOMY.

In a study of the changes that take place in the marrow after splenectomy Ernest M. Johnstone[1] has reached somewhat different conclusions from those arrived at by previous workers, notably Pearce and Krumbhaar.[2] The latter authors failed to find early changes in the marrow that would account for the phenomena, clinically observed, that the most severe stage of anæmia and recovery therefrom occurs during the first six months after splenectomy. They concluded that the late changes found—namely, hyperplasia occurring 6, 12, and 18 months after removal of the spleen—cannot be explained as compensatory to the anæmia following this operation. Contrary to these findings, Johnstone has found definite early changes in the marrow. He attributes the difference between his results and those of other workers to a fundamental difference in the method of experimental control. Former observers used the marrow of one animal to control the changes of another, whereas Johnstone has shown that the marrows from different normal animals vary very considerably, and therefore he controlled his post-splenectomy changes by an examination of a specimen removed from the same animal before the operation. Further controls were obtained from non-splenectomised animals which were subjected to similar conditions as the splenectomised, even to the extent of opening the abdomen, drawing out the spleen, submitting it to the same amount of trauma as would be given were it removed, but replacing it in its place and closing the wound. Johnstone found that changes occurred earlier in the rib marrow than in the central third of the femur (the site chosen by other workers), and he therefore made his observations on the former bones.

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[1] La Riforma Medica, Oct. 22nd, 1923.

[1] Papers from the Mayo Foundation, vol. ii., 1921–22.

[2] The Spleen and Anæmia: Experimental and Clinical Studies. Philadelphia: J. B. Lippincott Co. 1918.

In analysing his results he noted the changes that took place as follows: (1) Changes in the marrow itself—namely, erythrogenesis, leucogenesis, vascularity, and density of the marrow cells; (2) changes in the blood—namely, hæmoglobin content, erythrocyte, leucocyte, and differential count; and (3) changes in the condition of the animal, such as weight, general appearance, and any factor which might, even slightly, influence the marrow. Five series of experiments were carried out, of which the first four were unsatisfactory in not attaining exact experimental control, and are therefore not reported in detail. The fifth series consisted of (*a*) 14 dogs, eight splenectomised, and six non-splenectomised, from which specimens of marrow from the ribs were taken at frequent intervals, the operations being carried out under ether anæsthesia with sterile technique; and (*b*) four dogs, two splenectomised and two non-splenectomised, treated as in (*a*), but with the substitution of cocaine anæsthesia for ether. In order to obtain the marrow specimens a piece of rib 4 cm. long was removed from a point midway between the spine and sternum. The first specimen, removed before splenectomy, served as a control for subsequent observations on the same animal after splenectomy. The non-splenectomised dogs in both series received exactly the same treatment, including removal of portions of the ribs and the abdominal operation, but the spleen was returned to the abdomen. In this way many specimens (up to nine) were removed from the same animal at intervals of a few weeks to several months during a period of 54 weeks' observation. Thus each splenectomised dog was controlled by a specimen taken before the removal of the spleen, and by another dog subjected to exactly the same procedure at the same time. Before each operation the general condition of the animal was noted and the blood count examined. At the end of the experiment the animals were killed and necropsy performed to ensure that no other disease or factor was present that could have influenced the observations. Animals suffering from any complication were removed from the series.

Summarising these results Johnstone found that (*a*) the erythrogenetic activity was increased after a latent period of about four weeks. It reached its maximum intensity at about the twelfth week, remained at that level for about 12 weeks, and then decreased until about ten weeks later it reached a degree slightly above the normal before splenectomy, at which level it remained. Coincidently with this sequence of events, the hæmoglobin, red cell count, and weight of the animal first diminished with the development of anæmia, and only slowly rose again until they reached or exceeded a normal level. The vascularity and density of the marrow cells showed changes running parallel with the erythrogenetic activity. (*b*) The leucogenetic activity showed a marked rise in the first two to three weeks, but rapidly sank to the normal or below it. These changes were, however, inconstant. Concurrently the blood showed a parallel leucocytosis. From these results it appears that the increased erythrogenesis occurs some time before the reduction of the anæmia, and indicates that "whatever destructive agent becomes active after the removal of the spleen, it is so potent that its effect can be compensated only by prolonged hyperactivity and hyperplasia of the marrow." In discussing the relation of the marrow changes to the removal of the spleen and the subsequent anæmia, Johnstone mentions the various theories that have been advanced, such as the presence of a hæmolysin or the absence of an anti-hæmolytic body, a delayed release from the cells manufactured in the marrow, the effect of ether anæsthesia, and so on; but he comes to the conclusion that the hypertrophy and hyperplasia in the marrow is "probably secondary and compensatory to the anæmia that follows removal of the normal spleen, thus representing a physiologic response to a demand for more blood cells. It may have no relation to the absence of the spleen. The persistence of this marrow reaction, which far exceeds the duration of the post-splenectomy anæmia, may likewise be an expression of the law of regeneration in excess."

CHRONIC GLANDERS IN MAN.

Owing to the rarity of glanders in man, errors in diagnosis are apt to be made. Dr. H. Schwarz, of Troppau in Silesia, who records[1] a case in a soldier, aged 27, which proved fatal after 21 months' illness, illustrates the rarity of human glanders by the fact that during the period 1876–86 there were only 20 known cases in the whole of Prussia. During the late war, when there was for a time a considerable increase in glanders among horses, no epidemic occurred among human beings. According to Lühr's estimate, during the war there were only about 50 human cases, and these were mainly due to laboratory infections from handling cultures of glanders bacilli. Manipulation of the blood of infected animals apparently never gave rise to any case. Veterinary surgeons are occasionally infected in the performance of autopsies, but the attendants of animals suffering from the disease run the greatest risk. The not infrequent occurrence of joint swellings in the course of chronic glanders may lead to the erroneous diagnosis of polyarthritis. Acute glanders is liable to be mistaken for typhoid fever, septicæmia, or erysipelas, while chronic glanders, as in Schwarz's case, may be diagnosed as tuberculosis or syphilis. The mortality from chronic glanders is 50 per cent. (Jochmann). As regards treatment, Lühr and his collaborators, who carried out systematic investigations on a large number of horses during the war, employed seven different varieties of salvarsan, dyes such as methylene-blue, copper compounds, preparations of iodine and mercury, quinine, and other drugs. Most of these had no effect, though a combination of mercury and potassium iodide was encouraging. Protein-therapy, the use of serum, and treatment with glanders bacilli were also fruitless, and a specific cure for the disease has not yet been found.

FISH VENOMS.

Among the poisons belonging to the mineral, vegetable, and animal kingdoms there are few of which so little is known as the poisons contained in or excreted by fish. This is the more strange as a good deal of research has been carried out in this field, and Dr. H. Muir Evans, of Lowestoft, has for many years been engaged[2] in painstaking investigations into the nature of the defensive venoms of fish. His most recent work on the defensive spines of fishes, living and fossil, and the glandular structure in connexion therewith, with observations on the nature of fish venoms, published in the Philosophical Transactions of the Royal Society of London (Series B, Vol. 212, pp. 1–33) is largely concerned with the action of the venoms of *Trachinus draco* (the greater weever) and *Acanthias vulgaris* (the spiny dog-fish). Dr. Evans has supplemented his laboratory investigations with the clinical research for which a fishing port like Lowestoft provides ample opportunities, and he has come to the conclusion that the venom of *Trachinus draco* has both a neurotoxic and a hæmolytic action, the latter characteristic being the most important. The pain of a weever sting is of a burning, stabbing character and may be severe enough to drive a man mad. Smacksmen have told Dr. Evans that if a live weever is thrown overboard and is seized by a gull it falls into the sea as if struck dead. A rare complication is the appearance of hæmorrhagic patches. If the sting is not treated, the pain may last for hours or throughout the day, and on account of the importance of poisoning by fish venoms among fishermen at sea, Dr. Evans is of the opinion that our smacks and drifters should be obliged to carry a simple outfit for the treatment of such cases. The most useful method is to inject into the puncture a few minims of a 5 per cent. solution of permanganate of potash, and a simple outfit, consisting of a small glass hypodermic syringe, rustless needles, and some small ampoules containing a solution of permanganate of potash, would cost little and might prevent much suffering. Two patients treated by Dr. Evans in this manner obtained immediate relief from the pain, and there was no subsequent inflammation or gangrene. It would be interesting to learn if the fish venom introduced into the human body parenterally by a stab has any connexion with the symptoms of poisoning induced by eating certain fish. There is a possibility that in both forms of poisoning the suprarenals may be involved, and in this connexion it is instructive to note that a Danish physician has recently recorded two cases of severe asthma following a large meal of uncooked mussels. In both cases the most distressing dyspnœa was associated with cutaneous phenomena—a scarlatiniform rash in one case, and severe itching in the other. In both cases the hypodermic injection of a little adrenalin had a most dramatic effect, normal respiration being restored within two minutes.

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[1] Medizinische Klinik, Oct. 7th.

[2] See also The Lancet, 1921, i., 517.

The pathological action of venoms will probably be unravelled by observations on the lower forms of animal life. Mussel poisoning may give rise to various clinical types—an exanthematous type, with itching and a rash, a gastro-intestinal type, and a paralytic type. In 1907 Richet obtained from the mussel (*Mytilus edilis*) a toxic substance analogous to the actino-congestine which he had previously extracted from sea anemones. Mytilo-congestine causes diarrhœa, vomiting, prostration, and, most significant of all, a fall of the arterial blood pressure. The necropsy shows intense hæmorrhagic congestion of the mucous membranes. Actino-congestine produces a similar clinical picture. Closely allied to the latter venom is meduso congestine obtained from the jelly-fish (*Rhizostoma cuvieri*), which causes local irritation and œdema, and in some cases intense dyspnœa, prostration, and severe diarrhœa in rabbits and guinea-pigs. The post-mortem findings include œdema of the lungs, visceral hæmorrhages, and congestion of the liver, kidneys, and intestine. But the most significant lesions are those of the suprarenal capsules which are engorged with dark blood. It is interesting to note that the venom of the weever also causes intense visceral congestion and internal hæmorrhages. It is probable that the dried venom of the jelly-fish is responsible for the frequent attacks of intense coryza and even asthma observed among the men when nets are mended after the summer drift fishing. These are but a few of the many points of great interest raised by the researches of Dr. Evans and others, and it is to be hoped that future investigations will add much to what we already know of a fascinating subject.

THE HEART IN DIPHTHERIA.

After a review of the literature, in which she shows that there is by no means unanimity of opinion as to the cause of cardiac failure in diphtheria, Dr. Mathilde Loth,[1] of the Department of Pathology and Bacteriology of Yale University, describes her own observations on the heart in diphtheria, which consisted chiefly of (1) investigations of human cases coming to autopsy and (2) observations on the effect of diphtheria toxin on the guinea-pig heart. Physical examination of the cases which came to autopsy showed enlargement of the heart to percussion, feeble heart sounds, and gallop rhythm. The chief gross pathological finding was dilatation of the right side of the heart. On histological examination in only one out of 19 cases was definite myocarditis noted. The principal histological lesions were more or less cloudy swelling and fat accumulation with slight increase in the number of interstitial cells, which were mostly mononuclears. Comparative studies of the heart in cases in which death occurred from some infection other than diphtheria and a third group in which the heart was presumably normal showed that the differences between the three groups were quantitative rather than qualitative. There was no sharp line between the normal and abnormal, and no clear-cut difference could be detected in the hearts from diphtheria cases and those from other types of infection. Injection of lethal or sub-lethal doses of diphtheria toxin into guinea-pigs produced degenerative changes in the heart muscle similar to those seen in the human heart after diphtheria, but a true inflammatory reaction was not produced.

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

The Fifth Congress of the Far Eastern Association of Tropical Medicine was held in Singapore from Sept. 3rd to 17th last under the Presidency of Dr. A. L. Hoops, principal civil medical officer of the Straits Settlements. From the formidable list of 78 scientific papers submitted at this Congress, as well as from the large number of medical men of many nationalities who attended, we may gather that much important work was done. Accompanying the official report are three scientific contributions which have already been printed. Dr. A. T. Stanton, in discussing the control of beri-beri in the Far East, considers that the over-milling of rice is the chief factor in the production of this disease; and this vitamin deficiency theory is supported, not only by the results of animal experiments, but also by observations on outbreaks of the human disease. He further considers that the theory is supported by the result of preventive measures undertaken during the past ten years, and by the effects of food control on the incidence of the disease in Malaya. For the effective control of beri-beri the first essential is to ensure that a supply of under-milled rice is available as an ordinary market produce, and that it is sold at a price which enables it to compete with the over-milled variety. This should be accomplished by taxes on over-milled rice, inasmuch as an international convention to prohibit its production seems at present impracticable. On the whole he believes that education and propaganda methods amongst employers of labour and other classes in the community are the most effective means of combating this disease. W. A. Sawyer made a contribution on the advantages of international organisation for control of disease, with special reference to hookwork disease and beri-beri. He also advocates some international action with reference to the taxing of unsuitable rice. Apparently in Australia such a tax has long been in existence, having been instituted primarily to protect the milling industry in that country. With reference to hookworm disease, the campaign at present being conducted in Australia is described. An admirable review of recent work upon vitamins, which contains a few original observations, is contributed by M. Barrowcliff. It is hoped that the full Transactions, comprising nearly all the communications, in two volumes, will be published before the middle of 1924.

We regret to announce the death of the well-known physiologist, Prof. Robert Tigerstedt, at Helsingfors on Dec. 2nd, in his seventieth year.

Applications are invited for the office of Milroy Lecturer for 1925. The lectures have to deal with State medicine or public health, and carry an honorarium of 60 guineas. Suggestions are kept in print for the guidance of lecturers.

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[1] Archives of Internal Medicine, 1923, xxxi., 637.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLVIII.—THE TREATMENT OF PYELITIS.

THERE are many phases and varieties of inflammation of the renal pelvis, and the important preliminary to treatment is correct diagnosis. Cases in which the use of the cystoscope and the ureteral catheter are required are best treated by the urologist. Pyelitis may complicate pre-existing disease of the urinary tract, or may develop in a urinary tract free from disease. In the former case the infection is ascending, in the latter the source of infection lies usually in the bowel (colitis, chronic constipation, appendicitis, chronic dysentery, piles) or gall-bladder (gall-stones, cholecystitis), and the infection is hæmatogenous. Pyelitis is of special importance in infants and in pregnant women. The infection is most commonly due to the *B. coli communis*, present in pure culture. Pyelitis may be acute, chronic, recurrent, and quiescent or "silent."

The Acute Condition.

In acute uncomplicated pyelitis the onset is sudden, and the patient, who is seriously ill, is confined to bed and to the care of a nurse. A smart purge is administered either in the form of a pill containing mercury, colocynth, and hyoscyamus, or of a large dose of castor oil, followed by a saline. There has usually been a period of constipation or of diarrhœa before the onset of the attack, and during the acute stage of the pyelitis there is atony and distension of the large bowel, partly from the adjacent inflammation in the renal pelvis and partly from the fluid diet. After the purge a daily action should be ensured by means of senna, cascara, or some other vegetable laxative. Salines are unsuitable for continued use in these cases on account of the distension of the bowel they produce. A daily enema (soap and water) may be necessary, and washing the large bowel and the occasional use of a rectal tube may give much relief. There is often severe pain in the kidney, and there may be renal colic from descending ureteritis. Small doses of morphia may be necessary. In uncomplicated pyelitis the infection is unilateral, and since it does not involve the kidney there need be no hesitation, on account of the renal function, in giving morphia for pain. But the effect of the morphia on the bowel will limit its use to the most severe cases of pain. Hot fomentations, turpentine stupes, antiphlogistine, or linseed poultices will give much relief.

Diuretics are used in all cases. A diuretic water such as Vittel, Contrexéville, or Vichy, should be given and a definite quantity, such as one bottle (1 litre) or one and a half bottles, each 24 hours, prescribed. The water may be slightly warmed. Other diuretics may be used. Buchu tea, made by adding a tablespoonful of the dry leaves to a pint of boiling water in a teapot, and infusing for 15 minutes, and drunk hot, two pints in 24 hours, is a powerful diuretic, and should be used if the patient does not rebel on account of the taste. Parsley tea may also be prepared.

Alkaline treatment is the most effectual in the majority of cases of acute pyelitis, for the reaction of the urine is mostly strongly acid and the infection a pure culture of *B. coli*. Sod. bicarb. is the most powerful alkaliniser of the urine, but citrate and acetate of potash are efficient and are less unpalatable. The dose should commence with 10 gr. four-hourly until the urine is neutral or slightly alkaline, when the quantity is reduced to 10 gr. t.d.s., the reaction of the urine being kept neutral or slightly alkaline by varying the dose. The alkaline, combined with diuretic treatment, should continue until the temperature falls and the local symptoms subside.

Urinary Antiseptic Treatment.—The urinary antiseptics are the formaldehyde series (hexamine, urotropin, helmitol, &c.), salol, and boric acid. Boric acid has a moderate antiseptic action in the urine but upsets the digestion, and in acute cases is better avoided. Salol is most useful in cases with prominent bowel symptoms. It may be prescribed alone (10 gr., in cachet, t.d.s.) or combined with mercury and naphthol. Salol, 10 gr.; β naphthol, 5 gr.; and pulv. hydrarg. c. creta, 2 gr., is a useful combination.

The formaldehyde series of urinary antiseptics gives the most powerful antiseptic action in the urine. Hexamine (or urotropin) is absorbed, circulates in the blood-stream and is excreted by the kidneys, and when it comes in contact with the acid urine is split and formaldehyde given off. Hexamine should be taken in a large draught of water when the stomach is empty, so as to avoid the action of the acid gastric juice. It should not be combined with an acid (sodium acid phosphate), as formaldehyde is liberated in the mixture and indigestion will probably result. If the urine is neutral or alkaline, an acidifying drug should be given, such as sodium acid phosphate (30 gr. t.d.s.), and the dose increased until the urine becomes acid. Sodium acid phosphate should be given after food, but sodium benzoate may be combined with hexamine. The antiseptic and alkaline treatments are alternative and cannot be given together. The alkaline treatment should first be tried.

Diet should be mainly fluid, but if the patient can take Benger's or milk-pudding, the flatulence caused by excessive quantities of fluid may be avoided. Tea may be given, but not coffee; alcohol only for definite collapse or extreme weakness.

Vaccines are rarely of use in acute pyelitis, but during the acute stage an autogenous vaccine should be prepared ready for use when the attack is waning.

Relapses.—The patient or his friends must be warned of the common occurrence of relapses, especially on first getting out of bed or going downstairs. The patient should therefore be confined to bed for seven or ten days after the symptoms have disappeared and the temperature is normal, and the return to normal life should be gradual. In the pyelitis of infancy the high temperature may necessitate tepid or cold water sponging. In the pyelitis of pregnancy the uterus need only very rarely be emptied; catheterisation of the ureter on the affected side with lavage of the renal pelvis has, in some cases, a rapidly beneficial effect. This method has its risks in acute pyelitis, and should only be adopted after careful consideration.

In acute pyelitis constant watch must be kept for the enlargement of the kidney, which will indicate pyelonephritis, or if the urine suddenly clears, the pain increases, and the temperature assumes a swinging character, pyonephrosis has developed. In these cases operation, either nephrotomy or nephrectomy, will probably be required.

Ascending Pyelitis.—In acute pyelitis (ascending pyelitis), which is secondary to infection of the lower urinary tract, either recently produced by catheter, sound, or operation, or of long standing, the general treatment is identical with that already outlined. Surgical interference in the lower urinary tract is reduced to a minimum. If a stricture is being dilated, the passage of instruments is at once stopped; if a course of bladder washing for cystitis is in progress, this is discontinued. But where obstruction is present, provision must be made for drainage of the bladder. In an enlarged prostate, requiring the catheter, the instrument may be tied in the urethra; or if there are difficulties in the way of this or the cystitis is acute, a rapid suprapubic cystotomy with the introduction of a large tube (not a small self-retaining catheter) will be the best procedure. The object should be to retain free drainage with the minimum of interference.

Chronic, Relapsing, and Quiescent Pyelitis.

In chronic, relapsing, and quiescent pyelitis there is often difficulty in diagnosis. The local symptoms (pain and tenderness) may be slight or even entirely wanting. The symptoms are usually those of chronic cystitis, and the diagnosis is made by means of the cystoscope and ureteric catheter. In these cases washing of the bladder, while it gives temporary relief from symptoms, has no effect on the source of the infection, and if too vigorously carried out, may actually be the exciting factor of an attack of pyelitis. Either antiseptic treatment or alkaline treatment may be tried, remembering that the antiseptic treatment is an attempt to destroy the bacteria, while the alkaline treatment only neutralises the acid toxin. The treatment is likely to be prolonged, and it is much better to interrupt it from time to time than to give a fixed dose of hexamine for an indefinite period. The patient should be warned of the chronic nature of the complaint, and the medicine prescribed in courses of four weeks at a time. During the course the dosage and the reaction of the urine should frequently come under review. The usual dose of 10 gr. of hexamine three times daily may cause irritation in some patients when the urine is highly acid. In this case the dose should be reduced to 5 or 3 gr., and if any acidifying drug (sodium acid phosphate) is being given, it should be omitted. In other cases the dosage may be increased to 12 or 15 gr. three times daily. Beyond this there is usually increased bladder irritation. The reaction of the urine must be definitely acid. If the urine is alkaline, acidifying drugs must be given with the precautions already mentioned. It is often helpful to give alternate courses of a month of the alkaline and the antiseptic treatment. Hyoscyamus, belladonna, and small doses of opium are useful for quieting bladder spasm and sandalwood oil is soothing to the mucous membrane.

Vaccine-Therapy.—The results obtained by vaccines in chronic pyelitis due to *B. coli* are often disappointing, but undoubted benefit often follows their use. The usual method is to commence with small doses of 3 or 5 millions of autogenous vaccine, and rise slowly by weekly injections to as high as 300 or 500 millions, reducing the dosage if a pronounced reaction follows an injection. Here again the value of repeated short courses is, I believe, greater than that of injections continued for an indefinite period.

Lavage of the Renal Pelvis.—In chronic and relapsing pyelitis, lavage of the renal pelvis is of great service. It is a method which, in the hands of the expert, is easy and carries little risk, but in the hands of the inexperienced is dangerous. It consists in introducing a fine catheter through the cystoscope along the ureter into the renal pelvis and injecting, by means of a small syringe, a small quantity of mild antiseptic into the renal pelvis, and allowing it to flow out. This injection is repeated a number of times, and the pelvis is finally emptied and the catheter withdrawn. No general anæsthetic is required unless in the most nervous of patients. After the lavage the patient should rest for a day in bed, unless well accustomed to instrumental manipulation when a rest of one or two hours may be sufficient. The fluids I most frequently use are silver nitrate solution (1 in 15,000), collosol argentum (½ or ¼ strength), oxycyanide of mercury (1 in 10,000). A course of six injections at fortnightly intervals should be tried, general treatment not being interrupted. Renal lavage is frequently but by no means invariably successful in curing the infection; distressing bladder symptoms may disappear, while bacteria persist in the urine, and the patient should be warned of the probability of a recurrence of symptoms. The presence of a quiescent calculus in, or dilatation of the renal pelvis, may cause persistence of pyelitis in spite of treatment. In a case of chronic or relapsing pyelitis the original source of the infection—for example, chronic constipation, colitis, chronic appendicitis, piles, diverticulitis, cholecystitis, and gall-stones—should be searched for and carefully treated, and cases cured after prolonged treatment may relapse from a reinfection from the bowel. On the other hand, I have met with pyelitis which followed too energetic washing of the large bowel in colitis. Treatment of these primary sources of infection should always form part of the treatment of pyelitis.

John Thomson-Walker, F.R.C.S.,
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St. Peter's Hospital for Stone, &c.

Special Articles.

THE GENERAL MEDICAL COUNCIL.

Penal Cases.

The winter session of the General Medical Council opened on Nov. 27th; Sir Donald MacAlister presided. His address appeared in The Lancet of Dec. 1st. Nineteen penal cases came before the Council during the session. The cases were heard in public; the Council deliberated upon them in camera, and the decisions were publicly announced as usual. Two of these cases were forwarded by the Dental Board with the findings of the latter body. Four medical cases had been adjourned from previous sessions of the Council. Four names were erased from the Medical Register, and two names were erased from the Dentists Register. Three medical cases were withdrawn for various reasons; the remaining cases were briefly as follows:—

Tuesday, Nov. 27th.

The Case of Ernest Mayer.—This case was adjourned from the May–June session. E. Mayer (or E. Mayer Neville), registered as of Tynewydd Villa, Treherbert, Glam., was then found to have permitted posters printed at his expense to be exhibited at a colliery and in houses, inviting workmen desirous of choosing himself as their panel doctor to do so, and giving directions as to the means of effecting a transfer. A second charge, of giving implied or expressed consent to house-to-house canvassing carried out with the same intention, was found to be not proved. Testimonials with regard to Dr. Mayer's conduct in the interval were placed before the Council, and Dr. Mayer repeated his previously expressed regret. The Council did not see fit to direct erasure of his name from the Medical Register.

The Case of Patrick Joseph Honan.—P. J. Honan, registered as of 2, Glandore-park, Antrim-road, Belfast, had been convicted at the Surrey Assizes, held at Guildford on July 5th, 1923, of a felony—namely, of using a curette or other instrument with intent to procure a miscarriage, and had been sentenced to 18 months' imprisonment with hard labour. Dr. Honan attended in custody, and was represented by Mr. Conway, solicitor. It appeared that the relation between the practitioner and his patient was personal, not professional; at the assizes Mr. Justice Avory had stated that he was satisfied that the accused was not carrying on practice in the procuring of miscarriage for trade or reward. The woman in question had been seriously ill following the operation, but had recovered. The Council directed that the name of Patrick Joseph Honan be erased from the Medical Register.

The Case of James Reidy.—This case was adjourned from the November session, 1922. James Reidy, registered as of Gardenfield, Newcastle West, Co. Limerick, had been several times convicted between 1920 and 1922 of being drunk and incapable or disorderly. Letters of recommendation concerning his behaviour in the interval were read, and Mr. Reidy renewed his previously made undertaking to refrain from drink. The Council did not see fit to erase his name from the Medical Register.

The Case of David Charles Williams.—This case was adjourned from the May–June session. D. C. Williams, registered as of Brynfedwen, Treherbert, Glam., was found to have been guilty of a breach of the Council's notice with regard to "covering," having permitted an unregistered person (his "dispensary attendant") to practise in his presence as if he were registered in the Dentists Register. Dr. Williams had supported his assistant's claim to be so registered by a certificate in which he stated that the said assistant had performed "all operations usually entrusted to dentists." The Dental Board, however, had found that the assistant could claim only the status of a mechanic, and had not admitted his name to the Register. The terms of Dr. Williams's certificate, therefore, laid him open to a charge of covering. The Council accepted, in place of the usual letters from members of the medical profession, statutory declarations from Dr. Williams and his dispensary attendant as to the latter's employment in the interval. The Council accepted Dr. Williams's assurances as to his desire to comply with every regulation called for by a high standard of professional conduct, and did not see fit to erase his name from the Register.

The Case of John Herbert Cecil Grene.—J. H. C. Grene, registered as of Bryn Issa, Bridge-street, Wrexham, was convicted, at the Broxton (Chester) Petty Sessions on May 29th, 1923, of driving a motor-car in a dangerous manner, and of being drunk in charge of the car, and fined on each count, his licence also being endorsed. The Council had in this case taken the unusual course of acting on a solitary conviction in view of the increasingly serious view taken by the law of drunkenness when in charge of a car. Dr. Grene maintained that he was not drunk. Letters from medical men and others were read testifying to Dr. Grene's character. Relying on his promise to abstain from alcohol in the future, the Council did not see fit to erase his name from the Medical Register.

The Case of Thomas Hill.—T. Hill, registered as of Derwen Deg, Pontlottyn, Glam., was convicted on August 14th, 1923, of being drunk in charge of a motor-car, and sentenced to one month's imprisonment in the second division. Dr. Hill was represented by Mr. G. O. Slade, his counsel, who stated that he considered the Council had no jurisdiction in this case, as the word "misdemeanour" in Section 29 of the Medical Act, in his submission, related only to indictable misdemeanours. After consultation with the Legal Assessor, the President overruled the objection. Dr. Hill was understood to have pleaded guilty at the police court on the advice of a solicitor, who counselled him to take this course in order to avoid publicity. He gave his word of honour that such a thing would not occur again. Relying on this promise, the Council did not see fit to erase Dr. Hill's name from the Register.

WEDNESDAY, NOV. 28TH.

The Case of Charles Gilroy King.—C. G. King, registered as of 1425, Pollokshaws-road, Glasgow, was convicted at the sheriff court of Lanarkshire, at Glasgow, on June 21st, 1922, of procuring drugs from a chemist and failing to supply prescriptions and to enter particulars of the said drugs or any portion thereof in a day-book or register kept for the purpose, contrary to the Dangerous Drugs Act, 1920, and regulations made thereunder, and fined £50 or 30 days' imprisonment, and convicted at the same court on June 25th, 1923, on a similar charge, receiving a similar sentence. These prosecutions had been undertaken by the Home Office, whose medical inspector had brought the facts to light. Part of the drugs procured had been dispensed to patients in an ordinary manner, but most of the supply went to Dr. King's wife, who was an addict; it appeared that Dr. King was completely under his wife's influence, and in spite of promises made after the first visit of the Home Office medical inspector, no better care was taken in respect of the registering of drugs. The Home Office authorisation under the Dangerous Drugs Act had been withdrawn from Dr. King, but no question arose as to his having attempted to traffick in these drugs. The Council considered that Dr. King had not fully apprehended his responsibilities under the Dangerous Drugs Act; judgment was postponed for 12 months, with the usual proviso as to unexceptionable behaviour in the interval.

The Case of George Denholm Darlington.—G. D. Darlington, registered as c/o Royal Bank, Hunter-square, Edinburgh, had been three times convicted at the Edinburgh police-court, between 1919 and 1923, of being drunk and incapable, and was twice fined. Mr. Darlington attended and addressed the Council on his own behalf. The Council directed that his name be erased from the Medical Register.

The Case of William Mortimer Sheen.—W. M. Sheen, registered as of Wycliffe House, Highfield-road, Saltley, Birmingham, was charged with having knowingly enabled a woman not certified under the Midwives Acts, 1902 and 1918, to attend 17 cases of women in childbirth under cover or pretence that such women were attended to or to be attended by him or under his direction, and with having in many of these cases signed maternity benefit certificates and given notifications of birth, thereby enabling the woman in question to practise as though she were certified under the Acts. The complainants were the Birmingham City Council. Dr. Sheen was accompanied by Mr. J. P. Eddy, his counsel, who stated on behalf of his client that the latter, who had a panel of some 3000 patients, was grossly overworked at the time of the events in question, and was unwell. He stated that the Midwives Act, 1902, had never been judicially construed until April of this year, and few medical men knew its real meaning; but that, having regard to the recent decision in April last, his client now saw that he had not acted correctly, and desired to express his great regret. The Council found Dr. Sheen to have been guilty of infamous conduct in a professional respect, and directed that his name be erased from the Medical Register.

The Case of John Christie Forbes.—J. C. Forbes, registered as of 40, Mayfield-road, Edinburgh, was charged with having permitted his female clerk to sign in his name and to issue certificates required for National Health Insurance purposes, in which certificates it was stated that he had examined the patient, although in many cases he had not done so; and with having permitted the clerk on several occasions to sign and issue orders for prescriptions for an insured person. Dr. Forbes was represented by Mr. W. G. Manson, his counsel, who submitted that the action of his client did not amount to infamous conduct in a professional respect; that no moral turpitude was attributable to Dr. Forbes, who had merely committed a technical breach of the National Insurance Acts, which he much regretted, and which would never occur again. The Council found that the facts alleged against Dr. Forbes had been proved to their satisfaction, and that the certificates in question were given in a lax and careless manner, and were in effect inaccurate, misleading, and improper. The President emphasised the gravity of laxity in the giving of such certificates, and announced that the Council had decided to postpone pronouncing judgment until the May session, 1924, with the usual proviso as to correct behaviour in the interval.

THURSDAY, NOV. 29TH.

The Case of Walter Wiglesworth.—W. Wiglesworth, registered as of Mendip Lodge, Farncombe, Surrey, had been three times convicted at the Westminster, Bow-street, and Marylebone police-courts between 1913 and 1923 of being drunk and disorderly, and fined. Dr. Wiglesworth addressed the Council on his own behalf, stating that he very seldom drank stimulants, that very little alcohol excited him, and that he had lately had serious anxiety in the shape of domestic bereavement and financial loss. He gave an assurance that he had determined to refrain from alcohol for the rest of his life. The President, in announcing the decision of the Council, pointed out the danger of the habit indicated by the convictions, and announced that the Council, accepting Dr. Wiglesworth's assurance, did not direct his name to be erased from the Medical Register.

The Case of John Richard Griffith.—J. R. Griffith, registered as of Argoed, Mon., was charged with having employed as his assistant one Frederick A. Cotton in connexion with his practice, a person not qualified or registered under the Medical Acts, and with having knowingly allowed this assistant to attend, on his behalf, and treat patients in respect of matters requiring professional discretion or skill, and to sign and issue on his behalf insurance medical certificates. The complainants were the London and Counties Medical Protection Society, represented by Mr. Carthew. Dr. Griffith attended, and was defended by Mr. Bernard Campion, K.C., and Mr. A. T. James. Mr. Carthew stated that the principal witness for the complainants, Mr. Cotton, Griffith's assistant, had died the day after making his statutory declaration. Mr. Campion said that Dr. Griffith's case depended largely on the cross-examination of that witness, but that he would not raise any technical objection to the case proceeding. Mr. Cotton's declaration was then read. It stated that Mr. Cotton had been a dispenser for 12 years, and was engaged by Dr. Griffith between October, 1919, and April, 1923. He alleged that soon after entering his service Dr. Griffith asked him to see patients on his behalf, and presently he was accustomed to examine patients and to sign certificates in Dr. Griffith's name. Dr. Griffith had an insurance list of some 1300 persons, as well as a private practice. The majority of the patients believed him (Mr. Cotton) to be a medical man. Various witnesses were called in support of this declaration, and some were cross-examined. Dr. Griffith, in evidence, said that Mr. Cotton was in his service as surgery dispenser for three and a half years. In April, 1923, Cotton gave him a month's notice, but afterwards desired to come back into his service, and when he would not re-engage him certain anonymous and other letters followed, leading up to the present charge. He emphatically denied that Cotton ever took part in any operation requiring special skill or professional knowledge, or that Cotton had treated or attended for the purpose of treating any patient with his approval. He had employed Cotton to make inquiries as to how patients were going on; he would himself call if Cotton's report made it appear necessary. Cotton took temperatures, but he never allowed him to see a case which he had not first seen himself. Dr. Griffith's case-books were closely scrutinised by the Council, and he was asked many questions relating to the attendance on specific cases. The Council found that the facts alleged against Dr. Griffith had not been proved.

Friday, Nov. 30th.

The Case of Trevor Owen Williams.—T. O. Williams, registered as of 4, Ullet-road, Liverpool, had in 1917, when a captain in the Royal Army Medical Corps, been court-martialled, found guilty of drunkenness whilst on active service overseas, and dismissed from His Majesty's Service; had, in 1922, been reprimanded by a judge for being drunk whilst giving evidence; and had, in 1923, at the Liverpool police-court, been convicted of being drunk and disorderly, and fined. This case was adjourned from the November session, 1922, when Dr. Williams gave to the Council a solemn undertaking to refrain from drink for the rest of his life. Dr. Williams did not appear in answer to the Council's notice, and Mr. Harper, the Council's solicitor, read a letter from the Commissioner of the Salvation Army at Liverpool, in which it was stated that Dr. Williams had placed himself in the hands of the Salvation Army with the intention of overcoming his tendency to drink. The commissioner, writing with experience of many similar cases, asked for a further postponement of this case for a period of six months. The Council, in view of the intervention of the Salvation Army, regarded the case as exceptional and adjourned consideration thereof till the May session, 1924.

The Case of Charles Harold Bennett.—C. H. Bennett, registered as c/o P. Turner, 4, Adam-street, Adelphi, had between 1913 and 1923 been seven times convicted of drunkenness in Liverpool, Uxbridge, and London. Dr. Bennett did not appear in answer to the Council's notice, although the Council's solicitor had repeatedly attempted to induce him to do so. The Council directed that his name be erased from the Medical Register.

Cases Forwarded by the Dental Board.

Two cases were forwarded by the Dental Board with recommendations to the Council that the names of the dental practitioners concerned should be erased from the Dentists Register. *Stuart Christopher Nicoll*, registered as of 28, High-street, Newport, Mon. ("Dentist, 1921"), was convicted of theft at the borough police-court, Newport, in 1923, and sentenced to two months' imprisonment with hard labour. *Thomas William Cook*, registered as of 356, Walworth-road, London, S.E. ("Dentist, 1921"), was convicted in 1923 at the County of London sessions, of receiving property, knowing the same to have been stolen, and sentenced to six months' imprisonment in the second division. The Council directed that the names of these two practitioners be erased from the Dentists Register.

Preliminary Meeting of the Executive Committee.

At the meeting of the Executive Committee on Nov. 26th, before the commencement of the public session, the **President** read a letter from Sir Gilbert Barling stating that he was unable to be present owing to duties as a returning officer at the General Election. Among the items of business were the following:—

Reappointment of Members of the Council.

The official notification of the reappointment of the following members of the Council was read: Dr. Edward Magennis (Apothecaries' Hall of Ireland) for one year from August 1st, 1923; Sir John Moore (Royal College of Physicians of Ireland) for one year from Oct. 18th, 1923; Dr. Denis J. Coffey (National University of Ireland) for three years from July 30th, 1923; Dr. J. B. Leathes (University of Sheffield) for three years from Oct. 27th, 1923.

Restorations to the Medical Register.

The **Registrar** reported the restoration of the names of the undermentioned persons to the Medical Register:—

Edgar Annequin, Henry C. Beasley, Emanuel O. Beckley, Thomas A. P. Benbow, Nadir N. Bharncha, Frederick M. Bishop, Johannes K. J. Chambry, Yun Ying Chen, William J. Corbett, Wilfred A. Dewhirst, Hedley V. Drew, Alexander E. Drynan, Vincent C. Ellis, Reginald C. H. Francis, John J. Glynn, Alfred Golland, Henry C. Goodman, George W. Graham, John H. G. Hunter, Ramchander Kaushosh, Denis J. Keane, James I. Keating, Charles G. King, James Lee, Angus C. Livingston, Joseph J. Long, George W. Matthews, James J. F. Moriarty, Frederick P. Ransom, Lionel M. Rowlette, Elsie M. Royle, Frederick L. Sessions, Andrew F. Sinclair, James W. Sinclair, Emile H. Smith, Arthur F. Stewart, Thos. G. G. Symons, Sydney A. Tucker, Jerry Whitehead, Gomer Williams, John E. Williams, Charles W. Wilson.

British Medical Practitioners in Greece.

Correspondence had passed between the Committee and the Foreign Office and the Ministry of Health with regard to a Bill (enacted in 1922) giving the Greek Government the right to prohibit at any time by Royal Decree the practice of medicine or dentistry in any district in Greece by foreigners, and a decree, formulated under that Bill, prohibiting such practice. The Foreign Office had been informed that the Committee knew of no grounds on which a protest could be entered against the Bill, provided the rights of British practitioners now practising under Greek jurisdiction were safeguarded. The Ministry had been informed that as the authorities in Greece demand that medical practitioners desiring to practise in that country should be naturalised, there appeared to be no prospect of the establishment of reciprocal relations in regard to medical practice between the two countries. It was pointed out that a Greek entitled to practise medicine in Greece might act as physician at a hospital established exclusively for the relief of foreigners in sickness, provided that he engaged in no other medical practice in Great Britain. Further correspondence had passed between the Committee and the Privy Council relating to the case of a practitioner who went to Greece in 1919, attached to the Commission of Reconstruction, and was permitted to practise in the British and American colonies there. He was also medical inspector of the refugee camps under the direction of the Greek Red Cross. The Committee hoped that in these circumstances the authorities in Greece would be able to make such dispensations as would enable this practitioner to continue the work that he was doing.

British Medical Practitioners in Turkey.

The Privy Council had sent for the consideration of the Committee a copy of a despatch regarding the conditions under which foreign doctors may now practise in Turkey. The Lausanne Treaty has allowed the right of the exercise of the profession of medicine in Turkey only to doctors who are Turkish subjects and are furnished with a Turkish diploma. In accordance with these regulations foreign doctors will not be permitted to exercise their profession in Turkey. However, the right of exercise will be respected in the case of doctors who possess permits granted before the war after undergoing examination before the Committee ad hoc.

Foreign doctors practising in Turkey who have Turkish permits or diplomas and have delayed to register were required to present themselves to the Health Direction before Nov. 15th, and show their documents. Foreign doctors who have no Turkish diplomas or permits may now no longer practise their profession, and pharmacists are forbidden to make up the prescriptions of doctors who are not authorised to exercise their profession. Foreign doctors working in hospitals or dispensaries created before the war are also bound to submit to the same conditions. Hospitals and dispensaries opened since the war, but not possessing any recognised official character, were authorised to continue working till Nov. 15th, after which they were to be closed. His Majesty's High Commissioner and his Allied colleagues have addressed an identical note protesting against the despatch, in which they point out that it is in flagrant contradiction to, and clearly constitutes a violation of Article 4 of the Convention d'Etablissement signed at Lausanne between Turkey and the British Empire on July 24th last. It is added that the Turkish sanitary authorities state that all Red Cross institutions are to be closed, and it is possible that the British Seamen's Hospital might also be affected. The Committee resolved to send a reply to the Privy Council on similar lines to that sent in regard to Greece.

British Medical Practitioners in Italy.

An Italian Royal Decree of March 25th, 1923, reads as follows: "Italian subjects and foreigners who have duly obtained a professional diploma in an institute of a foreign State can also be inscribed, when such State has *come to a special agreement* with the Italian Government on the basis of absolute reciprocity of treatment for Italian subjects holding Italian diplomas." In answer to a request for information on this matter received from the Ministry of Health, it had been stated that, as complete reciprocity in regard to medical practice was established with Italy in March, 1901, and confirmed by Italian legislation of date June, 1910, it did not appear that the new regulations affected Great Britain.

OTHER BUSINESS.

Removal of Name from Medical Register at Practitioner's Own Request.—The Executive Committee having considered an application from Dr. Joseph McDonnell, registered as of Roscommon (L.R.C.S., L.R.C.P. Edin. 1864, L.M. 1879), to have his name removed from the Medical Register on the ground of having ceased to practise, the Council, on Tuesday, Nov. 27th, accepted the Committee's recommendation that the name be removed with the knowledge and consent of Dr. McDonnell, and directed that this be done.

Alteration of Personnel of Committees.—On Thursday, Nov. 29th, the Council agreed to a resolution by the Irish Branch Council to the effect that Dr. Kidd should replace Sir Edward Coey Bigger on the Education Committee, and that Sir Edward Coey Bigger should replace Dr. Kidd on the Examination Committee.

Reports of Committees.

The following reports were considered on Friday, Nov. 30th.

Dental Education and Examination Committee.—Sir James Hodsdon (chairman) presented this report to the Council. The report stated, inter alia, that the inspector had been present at three examinations, and one report from a body examined had been received, but that the Committee proposed to postpone the publication of the report until the inspection was completed. Six colonial and foreign applications for registration in the Dentists Register had been received, and it was recommended that four of these be acceded to. With regard to Japanese dentists duly registered in London, in 1918 diplomas of Doctor of Dental Surgery granted by the Nihon Dental College and the Tokyo Dental College were recognised as admitting to the foreign list of the British Register; in the light of a communication received from the Japanese Embassy in London, the Committee recommended that such recognition be extended to the degree of Bachelor of Medicine in the Dental Division of the Tokyo Imperial University, and to the degrees of Bachelor of Dental Surgery of the Osaka, Tokyo, and Nihon professional schools of Dental Surgery.

The report was received and its recommendations adopted by the Council.

Education Committee.—This report was presented by Dr. J. Yule Mackay (chairman). An application had been received from the Pharmaceutical Society for the recognition of their preliminary examination for the purposes of the registration of medical students. It was stated that a considerable number of pharmaceutical chemists took up medical studies at an age long past school age. The Committee resolved that this examination could only be recognised provided it was accepted by one of the English universities in lieu of their entrance or matriculation examination. The Committee had also considered the minimum age at which it was advisable to admit persons of mature years to matriculation under exceptional conditions, and resolved that it was desirable that the age of 21 years should be regarded as the minimum age at which a medical student should be admitted to matriculation under exceptional conditions.

The report was received and its recommendations adopted by the Council.

Pharmacopœia Committee.—This report was presented by Sir Nestor Tirard. The number of copies of the British Pharmacopœia, 1914, sold by the publishers between May 28th and Nov. 26th, 1923, was 1351 copies against 2297 copies sold in the previous year. The total number sold since the date of publication was 45,788. The Committee had considered a communication from the Privy Council, submitting for consideration and observations a draft of an Order in Council under the Dangerous Drugs Act, setting out particulars to be stated on the label of preparations containing poisons: (*a*) In the case of articles to be exported from Great Britain by wholesale dealers or sales by wholesale or retail dealers in the ordinary course of wholesale dealing with the name of the poison, and in the case of a preparation which contains a poison as one of the ingredients thereof, with such particulars as to the proportion which the poison contained in the preparation bears to the other ingredients as may be prescribed by Order in Council; and (*b*) in the case of all other sales in addition to the foregoing particulars with the name and address of the seller of the poison. The Committee agreed to reply to the effect that there did not appear to be anything in the draft to which the Council would take exception, provided that it should be made clear that medicines supplied to a patient by or on the prescription of a duly qualified medical practitioner are not affected by the new Order. The Committee also considered a communication from the Privy Council enclosing a draft proposing certain changes in the Schedule of Poisons appended to the Pharmacy Acts, and agreed to reply that the proposed changes were desirable, but made verbal suggestions for the sake of greater clearness.

Public Health Committee.—This report, presented by Sir John Moore (chairman), dealt with business transacted since the previous meeting of the Council in May and June, 1923. The Committee had been asked by the Director of Medical Services, General Headquarters, Parkgate, Dublin, whether Rule 3 of the Resolutions and Rules for Diplomas in Public Health now in force (which rule provided that a certificate might be given by a sanitary staff officer of the Royal Army Medical Corps having charge of an army corps, district, command, or division recognised for the purpose by the General Medical Council) could be made to apply to the Assistant Director of Medical Services i/c Sanitation, Irish Free State Army, and to the Commandant i/c School of Sanitation, Curragh Camp, so that a number of officers might be able to take their D.P.H. lectures this year. The Committee recommended that certificates under Rule 3 might be given by the two officers in question until Jan. 1st next, when the new Rules come into force. In accordance with a recommendation of the Public Health Committee, adopted by the Council on June 2nd, 1923, a letter had been addressed to the English Conjoint Board on June 7th, 1923, asking for further particulars in regard to exemptions granted to two candidates for the Diploma in Public Health. A reply from the Conjoint Board, dated June 28th, 1923, had cleared up the matter, and the Committee recommended that the answer of the English Conjoint Board be accepted, but they also recommended that in future no exemption to the rules for the Diploma in Public Health be granted except by the General Medical Council.

The report was received, and its recommendations adopted by the Council.

The proceedings of the session closed on the afternoon of Friday, Nov. 30th.

CRIME AND INSANITY

IN THE LIGHT OF THE REPORT OF LORD JUSTICE ATKIN'S COMMITTEE.

THERE is much that is satisfactory in the report [1] (briefly summarised in THE LANCET last week) of the Committee appointed to consider the law, practice, and procedure of criminal trials in which insanity is pleaded. It should reassure the public, for it reaches the conclusion that "to the insane person justice is done." The Committee says it could discover no case in which a miscarriage of justice had taken place in the execution of an offender. Another matter for satisfaction is the fact that the views of the medical profession have been fully stated to, and fully studied by, the Committee, and that they have had some effect upon the findings. On the major issues raised by the inquiry it might roughly be stated that on one point the law is prepared to correct itself; on two points it adopts the medical view; and elsewhere it stands firm. The report is at pains to show how little the legal and the medical view really differ. At any rate it leads to a better understanding if each side makes its position clear to the other. The recommendations of the Committee are printed below, together with a statement of the rules in McNaghten's case, to which reference will presently be made. It is perhaps needless to point out, firstly, that the Committee was not a Royal Commission representative of all shades of opinion, but was a body of experts in criminal law and its administration, a body composed of strong judicial, forensic, and Home Office elements; secondly, that lawyers proceed cautiously in matters of this kind; and thirdly, that no judge is bound by any of the Committee's findings; some of them will require legislation, but of this we are not likely to hear for some months.

Verdict "Guilty but Insane" to be Corrected.

The point upon which the law is prepared to correct itself arises out of the irrational verdict "guilty but insane." The word "guilty" means criminally responsible, yet the verdict means criminally irresponsible. It is thus a contradiction in terms. The explanation is this. Down to 40 years ago the nineteenth century jury could give a verdict of acquittal on the ground of insanity. In 1882 Roderick Maclean fired a loaded pistol at Queen Victoria, was tried for high treason, and, being in the usual way found "not guilty but insane," was ordered to be detained during Her Majesty's pleasure. The Queen, as Mr. Lytton Strachey has recounted, could not understand the verdict. How could Maclean be "not guilty" when she had seen him fire the pistol herself? If that was the law, the law must be altered, and altered it accordingly was. In 1883 Parliament changed the form of verdict; thereafter juries could find a man like Maclean guilty of the act charged, but insane at the time when he did it. This verdict, which gradually became abbreviated to "guilty but insane," the Committee's third recommendation proposes to correct. If Parliament agrees, the future verdict will be that the accused did the act, but is not guilty because he was insane (so as not to be responsible according to law) at the time. It may be added here that both the British Medical Association and the Medico-Psychological Association pressed for a right of appeal against verdicts of this nature. The Committee rejects the idea. It treats such a verdict as a decision in favour of the accused, a verdict which haa been invited on his behalf. Criminal law does not contemplate that a prisoner shall appeal from a decision which is in his favour. If there were such an appeal, the only result would be that he would have to be sentenced or else re-tried on the issue (which would not really be in dispute), whether or not he did the act alleged.

On two points, it has been stated above, the Committee adopts the medical view. There has been a feeling on the medical side that the medical expert in giving evidence in criminal trials is hampered in stating his conclusions. The Committee, without formulating this as one of its recommendations, observes: "We think that a wise discretion would allow all necessary expert evidence as to the general mental condition as a preliminary to evidence directly bearing on the ultimate legal issue raised by the plea." The second point on which the legal view gives way is in respect of acts committed under uncontrollable impulse. The Committee considers that the McNaghten rules (which in all other respects it desires to retain unchanged) are a formula "not logically sufficient" in such cases. It considers it should be made clear that the law does recognise irresponsibility on the ground of insanity where the act was committed under an impulse which the prisoner was, by mental disease, in substance deprived of any power to resist. This view forms the first of its recommendations. How great a concession to medical opinion it represents may be apparent to those who heard the cautious observations of the Lord Chief Justice on this point at THE LANCET Centenary dinner (see p. 1269).

Lessons of the McNaghten Trial.

The rules in McNaghten's case, to which this addition is proposed, otherwise explain themselves. It may be worth while, however, to dwell a little upon the facts of that famous trial. Daniel McNaghten was a man with a good head for business, who, to many people, displayed few signs of abnormality. But he got an impression that he was persecuted by the Tories, and so, after hanging about Whitehall and the Houses of Parliament for several days in 1843, he shot Edward Drummond, private secretary to Sir Robert Peel, in the street opposite Charing Cross, apparently mistaking him for Sir Robert Peel himself. To realise the humaneness of his trial in 1843, it is only necessary to go back a generation earlier to that of Bellingham who, in somewhat similar circumstances, shot the Prime Minister in the lobby of the House of Commons. Bellingham had been a Liverpool merchant in the Russian trade. He had been imprisoned in Russia for debt, got an impression that the British representatives in that country had not been helpful enough, brought his grievance home to England, where he freely advertised it, and finally shot Mr. Perceval, the Prime Minister, on Monday, May 11th, 1811. He was tried at the Old Bailey on the following Friday. Evidence was offered that his father had died insane, and the names of witnesses were mentioned who could testify to the madness of the son. The court would not wait to hear them. Bellingham was convicted and sentenced, and on the following Monday, within a week of his offence, he had been hanged and his body lay exposed upon the dissecting table. His hurried fate aroused no compassion in a public which was indignant at his crime. With such intemperate haste let us contrast the trial of McNaghten in 1843. When his case came on, a fortnight after the murder of Drummond, a month's postponement was at once granted in order that evidence of the unsoundness of his mind might be collected. Eventually, important evidence was produced; he was brilliantly defended by Cockburn; nine medical witnesses were called, who were permitted to give their own conclusions from the facts proved, unrestrained by any idea that they might thereby be usurping the functions of the jury. The prosecution had no rebutting medical evidence; the two medical experts employed by the Crown entirely agreed with those called for the defence; the Chief Justice, obviously impressed by the number and unanimity of the doctors, stopped the case, and the jury returned a formal verdict of "not guilty on the ground of insanity." The ease of McNaghten's escape from the gallows took the country rather aback. The public grew a little restive and frightened. The Law Lords expressed the view that it was a pity that the case was not fully tried. Thereupon the Lord Chancellor took the opinion of the judges, and thus there came into being the famous questions and answers known as the Rules in McNaghten's case (printed below). Subsequently, public feeling became more tranquil. It was seen that the acquittal was not unreasonable, and thus contemporary medical opinion obtained a considerable victory. Medical knowledge, of course, has made much progress since 1843, but these details have been recalled to show how admirably humane and how modern in its spirit was this famous trial of 80 years ago.

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[1] Cmd. 2005, H.M. Stationery Office. Price 6*d*.

Conflict of Medical and Legal Views.

Comment might be made on other aspects of the recent inquiry. The main point on which the lawyers stand fast is their conviction that a man may be insane and yet may be criminally responsible. The medical profession approaches this position from another angle. To medical science a man who is to-day a certified lunatic may for a long while have been in a morbid condition, exhibiting symptoms which the ultimate insanity explains to have been merely successive stages of the same mental disease. In relation to crime the lawyers declare this to be too wide, too uncertain a conception of insanity. They want to be able to make the reservation that in the earlier stages of these symptoms the man may have been "affected by every motive for committing or abstaining from committing a criminal act that would be likely to affect a person of sound mind and in substantially the same degree." The medical view, according to the lawyers, tends to say that any unsoundness of mind means criminal irresponsibility; this "would introduce so much uncertainty into the administration of the criminal law as to create a public danger." The apprehensions of the criminal lawyers are perhaps natural. The Home Office and the Director of Public Prosecutions can hardly be expected to agree with those who assert that crime itself is a symptom of insanity. To alienists the assertion may be a truism; to those responsible for administering the criminal law it is a startling paradox. But though the latter insist that an insane person may be criminally responsible, though high authorities like Sir Herbert Stephen would even be prepared in certain cases to leave a lunatic to be hanged, it must be remembered that in practice they are merciful if in theory they are severe. Every death sentence in England seems automatically to find its way into the Court of Criminal Appeal on the ground of insanity if no other ground is available. And at any rate in the case of McNaghten (as perhaps in that of Ronald True) the administration of the law was in advance of the popular standards of the day. In the face of this fact medical opinion must not be too impatient if the law moves slowly.

The Committee's Recommendations.

The following are the recommendations of the Committee:—

1. It should be recognised that a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist. It may require legislation to bring this rule into effect.
2. Save as above, the rules in McNaghten's case should be maintained.
3. Where a person is found to be irresponsible on the ground of insanity, the verdict should be that the accused did the act (or made the omission) charged, but is not guilty on the ground that he was insane so as not to be responsible, according to law, at the time. The existing statutory provision in this respect should be amended.
4. Until such amendment, the verdict should always be taken and entered as guilty of the act charged, but insane so as not to be responsible, according to law, for his actions at the time.
5. Accused persons should not be found on arraignment unfit to plead except on the evidence of at least two doctors, save in very clear cases.
6. The present law as to appeal should not be altered—i.e., there should be no appeal on the finding of insanity either on arraignment or after trial and, in the latter case, either as to the act or omission, charged or as to insanity.
7. Provision should be made, under departmental regulations, for examination of an accused person by an expert medical adviser at the request of the prosecution, the defence, or the committing magistrate.
8. Provision for a panel or panels of mental experts is unnecessary.

As to the Criminal Lunatics Act, 1884.

9. It is essential that the statutory power under section 2 (4) should be maintained.
10. The procedure under the sub-section is satisfactory and does not require amendment.
11. The discretion of the Secretary of State should be exericsed as at present.

RULES IN MCNAGHTEN'S CASE (1843).

Rule 1.

Question.—"What is the law respecting alleged crimes committed by persons afflicted with insane delusion in respect of one or more particular subjects or persons: as, for instance, where, at the time of the commission of the alleged crime, the accused knew he was acting contrary to law, but did the act complained of with a view, under the influence of insane delusion, of redressing or revenging some supposed grievance or injury, or of producing some supposed public benefit?"

Answer.—"Assuming that your lordships' inquiries are confined to those persons who labour under such partial delusions only, and are not in other respects insane, we are of opinion that notwithstanding the accused did the act complained of with a view, under the influence of insane delusion, of redressing or avenging some supposed grievance or injury, or of producing some public benefit, he is nevertheless punishable, according to the nature of the crime committed, if he knew at the time of committing such crime that he was acting contrary to law, by which expression we understand your lordships to mean the law of the land."

Rules 2 and 3.

Question 2.—"What are the proper questions to be submitted to the jury where a person alleged to be afflicted with insane delusion respecting one or more particular subjects or persons, is charged with the commission of a crime (murder, for example), and insanity is set up as a defence ? "

Question 3.—" In what terms ought the question to be left to the jury as to the prisoner's state of mind, at the time when the act was committed ? "

Answers 2 and 3.—" As these two questions appear to us to be more conveniently answered together, we submit our opinion to be that the jury ought to be told in all cases that every man is to be presumed to be sane, and to possess a sufficient degree of reason to be responsible for his crimes, until the contrary be proved to their satisfaction ; and that to establish a defence on the ground of insanity it must be clearly proved that, at the time of committing the act, the accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong. The mode of putting the latter part of the question to the jury on these occasions has generally been, whether the accused at the time of doing the act knew the difference between right and wrong ; which mode, though rarely, if ever, leading to any mistake with the jury, is not, as we conceive, so accurate when put generally and in the abstract, as when put with reference to the party's knowledge of right and wrong, in respect to the very act with which he is charged. If the question were to be put as to the knowledge of the accused solely and exclusively with reference to the law of the land, it might tend to confound the jury, by inducing them to believe that an actual knowledge of the law of the land was essential in order to lead to a conviction : whereas, the law is administered upon the principle that every one must be taken conclusively to know it, without proof that he does know it. If the accused was conscious that the act was one that he ought not to do, and if that act was at the same time contrary to the law of the land, he is punishable ; and the usual course, therefore, has been to leave the question to the jury, whether the accused had a sufficient degree of reason to know that he was doing an act that was wrong ; and this course we think is correct, accompanied with such observations and explanations as the circumstances of each particular case may require."

Rule 4.

Question.—" If a person under an insane delusion as to existing facts commits an offence in consequence thereof, is he thereby excused ? "

Answer.—" The answer must, of course, depend on the nature of the delusion ; but making the same assumption as we did before, namely, that he labours under such partial delusion only, and is not in other respects insane, we think he must be considered in the same situation as to responsibility as if the facts with respect to which the delusion exists were real. For example, if, under the influence of his delusion he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes, in self-defence, he would be exempt from punishment. If his delusion was that the deceased had inflicted a serious injury to his character and fortune, and he killed him in revenge for such supposed injury, he would be liable to punishment."

Rule 5.

Question.—" Can a medical man, conversant with the disease of insanity, who never saw the prisoner previously to the trial, but who was present during the whole trial, and the examination of the witnesses, be asked his opinion as to the state of the prisoner's mind at the time of the commission of the alleged crime, or his opinion whether the prisoner was conscious at the time of doing the act that he was acting contrary to law, or whether he was labouring under any, and what, delusion at the time ? "

Answer.—" We think the medical man, under the circumstances supposed, cannot, in strictness, be asked his opinion in the terms above stated, because each of those questions involves the determination of the truth of the facts deposed to, which it is for the jury to decide, and the questions are not questions upon a mere matter of science, in which case such evidence is admissible. But where the facts are admitted, or not disputed, and the question becomes substantially one of science only, it may be convenient to allow the question to be put in that general form, though the same cannot be insisted on as a matter of right."

OLD CHURCH HOSPITAL, ROMFORD.—An operating theatre constructed on up-to-date principles was opened at this hospital on Nov. 29th. It has been built at a cost of £1970, and is situated at the back of the nurses' home. The medical superintendent, Dr. W. S. O'Loughlin, said that a new theatre had long been required. Mr. A. H. Todd paid a tribute to the nursing staff, and Dr. J. G. McDougall and Dr. J. A. Fraser also spoke.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

FOLLOWING are some of the principal health statistics of three cities and two county boroughs for 1922 :—

Town.	Estimated population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Bristol	383,900	19·9	13·3	1·3	1·2	3·0	72	116	2·9
Newcastle ..	281,600	24·8	14·2	1·5	1·1	4·2	91	118	4·0
Salford	240,700	22·1	14·6	1·6	1·1	4·4	109	141	3·5
Cardiff	203,700	21·6	13·2	1·5	1·0	3·7	79	169	6·1
Sunderland ..	162,900	28·6	15·7	1·3	1·3	5·2	99	287	3·2

Bristol.

Dr. D. S. Davies comments on the deficiency of the isolation hospital accommodation. The extension scheme approved in 1914 has never yet been carried out. There are only 240 beds and during times of pressure the guardians and general hospitals have given assistance. The excessive prevalence of encephalitis lethargica, resulting in an aggregate of 108 cases between Jan. 1st, 1919, and Sept. 30th, 1921, did not continue during 1922, during which year there were 8 cases and 4 deaths. The report of Dr. Allan C. Parsons to the Ministry of Health (1922), quoted by Dr. Davies, does not suggest that the behaviour of this disease in Bristol was exceptional. The three home nurses, appointed in February, 1919, under the provisions of the Maternity and Child Welfare Act, 1918, have been found useful in checking both measles and diphtheria epidemics. Dr. Davies thinks that their efforts in carrying nursing aid and instruction to the mothers in the diphtheria epidemic, which reached its height in December, 1921, in the well-populated Bedminster district, were most valuable.

The report includes an interesting dissertation on tuberculosis, with a chart dealing with the ten years 1913–22, which indicates the prevalence in Bristol of the " young adult " type of pulmonary tuberculosis. The council have approved of arrangements for the provision of 60 beds for surgical tuberculosis in children at Lord Mayor Treloar's Hospital and of 100 beds at Frenchay, but both these schemes have been delayed by the Ministry on the plea of economy.

Repair work in housing has been encouraged by somewhat lower prices. " Gross overcrowding is far too rife," says the chief housing inspector, " and it is useless to take any action." " The absence of houses is a very serious handicap for young people," he continues, " if they have to start their married life in a bed-sitting room in an already overcrowded house. The bottom drawer is not required to-day. The common occurrence of births taking place in the presence of other members of a family has ceased to shock, and, on the grounds of morality and decency, prompt steps should be taken to overcome all obstacles." Comments are made on the unworkable nature of Section 28 of the Housing Act of 1919, which was intended to facilitate the renovation of houses. Dr. Davies sums up the situation by saying : " No real solution of the housing difficulty will be found until circumstances permit the unrestricted re-establishment of private endeavour, so that supply may follow demand."

Newcastle-upon-Tyne.

Dr. Harold Kerr thinks unemployment benefit and the National Health Insurance Act have proved very important public health measures during the industrial depression. Unemployment figures for the city improved as industry recovered from the effects of the coal strike of 1921, but after May, 1922, the conditions became worse, and at the end of the year there were 19,500 men and 1200 women idle. Atmospheric pollution showed an improvement on 1921, but this may have been due to trade depression. Dr. Kerr comments on the increase in deaths from diseases of the heart and blood-vessels, and thinks this may be partly due to the saving of life at earlier ages. Cancer, on the other hand, has shown no definite tendency to increase in Newcastle during the last 15 years. Diseases of the digestive system were less fatal in 1922, as they were in 1918, and Dr. Kerr suggests that shortage of money in 1922 and the limited choice of dietary in 1918 had similarly beneficial effects in restricting the population to plain and wholesome food. The influenza epidemic struck the city with great suddenness about Jan. 4th, was extremely prevalent during January, declined gradually, and disappeared about the end of February. It proved chiefly fatal to babies and adults, older children and adolescents being comparatively lightly affected.

Newcastle has escaped small-pox since 1910. In 1922 30 per cent. of the babies received exemption certificates, and in surrounding districts only about one in five of the babies born is vaccinated. A small outbreak of seven cases of enteric fever was associated with the milk from a dairy, probably originating with a farm outside the city, but the cause could not be definitely traced. Dr. Kerr thinks that owing to the efforts of the health visitors measles is now treated as a serious ailment and is consequently much less fatal than formerly. He also thinks that opportunities of infection with infantile diarrhœa are much lessened, as compared with ten years ago, "by the general use among non-breast-fed children of dried milk in place of the much more readily contaminated fresh form of the commodity," and that as the result of the teaching of the centres "the present-day Newcastle mother knows much more about baby-care than did her mother."

Two outbreaks of food poisoning occurred. One was associated with soup made from a ham-bone and left standing in a warm place in a kitchen in a poor neighbourhood; three persons were ill, one fatally. Two other consumers of the soup remained quite well but harboured the infecting organism, the *Bacillus enteritidis* of Gaertner, for about a week. The other outbreak was apparently caused by canned beef; 36 persons in 7 families were known to have been affected. The symptoms were acute but passed off in two days and there were no deaths. Later, information from the Ministry was received of three similar outbreaks in various parts of the country, apparently due to canned beef packed by the same firm. The infecting organism was not discovered in any of the outbreaks. The average stay in hospital of scarlet fever patients suffering from nose and ear discharges has been reduced by engaging a specialist, Dr. Neil Maclay, for the treatment of these complications. Promising results are also claimed from the prophylactic use of a detoxicated vaccine prepared from cultures of organisms from cases of scarlet fever developing ear and nose discharge.

A special effort has been made to follow up patients who discontinue treatment at the V.D. clinic, and the proportion of patients who cease attendance prematurely has been reduced from 30 per cent. in 1921 to 23 per cent. in 1922. Hostel accommodation is needed for infected girls and unmarried mothers. Four policewomen have done good service in patrol duty and in detective work in connexion with charges of abortion and treatment by unqualified persons. Dr. Kerr has no doubt of the great value of the maternity and child welfare scheme, and shows that the saving of life in the first year is coincident with a saving in the next four years. He evidently much regrets the cutting down of the staff by the dismissal of eight health visitors in 1921 and a reduction in the medical service, resulting in overcrowding at the centres, &c. New centres are now being opened and the medical sessions increased.

The report of the tuberculosis officer (Dr. W. H. Dickinson) shows that in spite of a steady reduction during recent years, Newcastle-upon-Tyne shares with its neighbours—Gateshead, South Shields, and Tynemouth—the unenviable distinction of having, in recent years, the heaviest death-rates from tuberculosis of all the county boroughs in England. Dr. Kerr suggests overcrowding as the chief cause, backed up in the case of Newcastle by loss of sunshine owing to the pall of smoke. The principal trades and occupations, he points out, are of a healthy nature. It is difficult to get hold of pulmonary tuberculosis at a hopeful stage, and Newcastle is in the anomalous position of having beds to spare at Barrasford Sanatorium and not nearly sufficient accommodation for advanced cases at the City Hospital. Successful results are being obtained at the various institutions from artificially-induced pneumothorax. Two notable lacks are an open-air school for pre-tuberculous children and accommodation for surgical tuberculosis.

Of 171 samples of milk examined 12, or 7 per cent., were found to contain tubercle bacilli. Owing to pressure of other work the 489 cows stalled in the city did not undergo regular veterinary examination. Slaughtering is carried out on 102 separate premises. A public abattoir, combined with a cattle market and meat market and with provision for the allied offensive trades, is needed, and Dr. Kerr says there is now general agreement that it should be on the outskirts of the city. The raising of the embargo on the importation of Canadian cattle has been accompanied by such restrictions that the Newcastle Corporation have not undertaken the necessary expenditure on wharfage for cattle ships. At the end of the year two farms were producing "Certified" and six "Grade A (tuberculin-tested)." An endeavour is being made to lessen the number of small general shops selling milk. In 1918 there were 668; now there are 266. The difficulty in getting renovation and repairs of houses is slightly decreasing; 523 new homes were provided in 1922 as compared with 305 in 1921, but very many more are still necessary to meet immediate needs. Of the new houses, 442 were built by the corporation on the Walker estate and 22 on the Pendower estate. The housing committee have set an excellent example by providing only one coal fire in each new house, the remainder being for gas. "Overcrowding is the rule and sub-letting is rife. There is no means of controlling this last as yet, and one constantly comes across the most heartless cases of profiteering at the expense of unfortunate tenants of so-called furnished lodgings."

Salford.

Dr. H. Osborne, in presenting his first report, mentions that the final exhortation of his predecessor, Dr. C. H. Tattersall, who resigned after 25 years' service, was as to the urgent need for a maternity home. The new sanatorium at Marple was opened in December. The question of the prevention of respiratory diseases is an urgent one and demands careful attention, and Dr. Osborne has no doubt that the gross atmospheric pollution has an important bearing on their incidence. During 1922, 2728 smoke observations were taken: 121 stokers were cautioned by the inspector; 39 firms were reported to and dealt with by the health committee; and 114 cautionary notices were issued to firms. Two firms were summoned for smoke nuisances and each case was adjourned sine die by the stipendiary magistrate.

Ten of the 197 samples of milk examined for tubercle bacilli gave positive results. The public analyst, Mr. G. D. Elsdon, reports on dirt in milk, and comes to the conclusion that 1 part of sediment per 100,000 parts of milk would be a fair standard to set up and that milk containing 2 or more parts per 100,000 should be classified as distinctly unsatisfactory. The subject is one of peculiar difficulty, he points out, because it is quite easy for the retailer to remove the dirt immediately before sale by decantation or filtration, and thus delude the purchaser into thinking he is buying a clean pure article. He thinks that a standard is badly needed for ordinary milk, and hopes that the "graded" milks, which can be sold at enhanced prices to those willing and able to pay, will not monopolise attention, seeing that ordinary milk will always constitute the bulk of the milk sold in the country. Proceedings were taken for the improper labelling of margarine and fines inflicted. Three of the margarine samples were advertised as blends or mixtures of the finest margarine with best butter, and contained respectively 5, 8, and 10 per cent. of butter fat. As such mixtures are not allowed to contain more than 10 per cent. of butter fat, it is obvious that a purchaser, who does not know the law, may easily be prejudiced by such an advertisement. Mr. Elsdon reports that a large proportion of the rice now sold is not polished or "faced" with talc. Some attention has been given to the amount of tin in tinned goods, the standard adopted being an excess of 2 gr. per lb., in accordance with a L.G.B. report of 1918. A sample of melon and orange jam was found to contain 6 gr. of tin per lb. Mr. Elsdon states that, although it is quite possible to prepare tinned goods containing less than 1 gr. of metallic tin per lb., this figure is frequently largely exceeded, especially in the case of old samples. A great improvement has taken place since samples of prescriptions issued under the Insurance Act were taken for analysis.[1] Thus from 1914 to 1920 the number of adulterated samples was 20 per cent., while in 1921 and 1922 the percentages of adulteration were only 3·9 and 5·4 respectively.

Dr. Osborne's report concludes with a description of the very complete child welfare scheme. There are nine centres and two clinics. Children from the centres requiring treatment or more than weekly supervision are passed on to the clinics and return to the centres when improved. A whole-time masseuse is employed at the clinics and centres with good results. Sessions are held at the clinics for expectant and nursing mothers, who require medical advice for themselves. Thus, skilled attention is available for the child from the time of its conception to the time at which it is passed on to the care of the school medical officer, and when this transference takes place its medical record passes with it, the school clinics and child welfare clinics being housed in the same buildings.

Cardiff.

Dr. Ralph M. F. Picken tells us that the extension of the city in November, 1922, besides adding a population of over 20,000 has introduced problems of a rural nature. For instance, the city dairy-farms have increased from 4 to 33 in number. A comparison of the Census figures of 1911 and 1921 shows that the excess of families over structurally separate houses has increased by 4149 since 1911. There is much multiple tenancy and in the middle of 1921 the excess of families over houses was 10,569. Using various estimates, Dr. Picken thinks that the number of houses which ought to be provided between 1921 and 1931 should be not less than 6000 and nearer 10,000. The number of houses erected during 1922 was only 71, of which 48 are classed as working-class houses. Slums, in the commonly accepted sense of the term, do not exist and therefore Cardiff is not able to put up a case for sharing in the annual Government grant of £200,000 for clearing away unhealthy areas. During the heat wave at the end of May and beginning of June the nuisance caused in Canton district by the variety of mosquito known as the common gnat led to an inquiry as to the types of mosquito existing in the neighbourhood. Dr. Simpson, of the Welsh National Museum, reported that the great majority of larvæ submitted to him were of the culex or gnat variety, but that two were of the anopheles type. The number of cases of malaria notified in 1922 was 15, all of which were infected abroad. Quite apart from the malaria risk, culex bites are a source of great discomfort, and steps have been taken, with the advice of Mr. John F. Marshall, hon. director, Hayling Island Mosquito Control, to endeavour to prevent mosquitoes breeding in the district.

Sunderland.

Dr. Henry Renney submits a table showing the result of the bacteriological examination of the water. The Sunderland water is derived from deep wells in the Magnesian Limestone. The Newcastle water is a pure upland surface water collected from large catchment areas near the Cheviots and in lower Northumberland. The Sunderland water is not filtered, while Dr. Kerr tells us that in the case of Newcastle there has been no increase in the area of the filter-beds or the storage capacity of the reservoirs during late years coincidently with the increased consumption of water. It is therefore interesting to compare the results of the bacteriological examinations during 1922 side by side:—

Class.	Water examinations, 1922.	Sunderland.	Newcastle.
I.	Colon bacilli not found in 100 c.cm.	67	2
II.	,, ,, found in 100 c.cm.	87	71
III.	,, ,, ,, ,, 10 c.cm.	32	100
IV.	,, ,, ,, ,, 1 c.cm.	2	16
	Total samples examined..	188	189

Both these waters are believed to be of great purity and, in view of Sir Alexander Houston's recent investigations, it is possible that seagull-droppings are the chief source of the colon bacilli in each instance.

Dr. Eustace Thorp, reporting on child welfare work, thinks bronchitis and rickets are exceptionally prevalent, and that "scarcely any baby in Sunderland attains the age of 1 year without suffering from one or more attacks (of bronchitis)." Treatment for otitis media is badly needed. Miss Barber, the chief health visitor, reports that four of the eight centres are decidedly overcrowded. "The grants of dried milk to necessitous cases have been a great help to many poor infants and nursing mothers." Midwives attended 76 per cent. of the births. The guaranteed salary (£150) of the midwife appointed for the East End has been repaid in fees to the Corporation. The Midwives Medical Aid Fund still operates. Each midwife pays 1*s*. 6*d*. of her 25*s*. fee to this fund, and out of the fund the midwife's fee is paid if a doctor has to be called in, the doctor's fee being paid by the patient. A charge upon the rates is thus avoided.

SCHOOL MEDICAL SERVICE.

Northamptonshire.

THE average number of scholars on the roll here was 28,248, and of these 10,479 were medically examined during the past year, 7885 of these being in the code group. Of the latter 955 were referred for actual treatment; 290 are recorded as being below standard nutrition. There were no cases of "bad" nutrition; 7·38 per cent. of the children were of "excellent" nutrition. Altogether there was a total of 96·32 per cent. normal and excellent nutrition, against 94·78 per cent. in 1921. Defective vision requiring treatment was found in 295 cases. Myopia occurred in the age-group up to 10 years, boys 11 per cent., girls 14 per cent., and in 11 years and over, boys 31 per cent., girls 39 per cent. It is pointed out that these figures show no disproportionate increased incidence in girls as is usually stated. Fifty-three boys and 102 girls were found to be myopic and 258 boys and 343 girls hypermetropic. Dr. C. E. Paget reports that a persistent fight is being made against uncleanly conditions, with the result that one school in a large urban area is declared to be "nit free"—a great achievement. The circulation of this fact with the name of the school ought to help considerably in getting a high standard throughout the county.

Corrigendum.—Dr. A. G. Jenner writes to point out that he is both medical officer of health for Stockport and also medical officer to the Education Committee. The two school medical officers are Dr. W. H. Rowell and Dr. Taylor-Haworth. We are glad to make this clear.

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[1] See THE LANCET, 1923, i., 772.

THE LANCET CENTENARY DINNER

THURSDAY, NOVEMBER 29th, 1923.

THE dinner given to THE LANCET in celebration of the Centenary of the paper was held at the Hotel Victoria, Northumberland-avenue, on Thursday, Nov. 29th, Sir DONALD MACALISTER, President of the General Medical Council, in the chair.

SPONSORS FOR THE DINNER.

Among those present as sponsors for the dinner or their guests were the following:—

S.E. Cmte. de Saint-Aulaire, French Ambassador; the Rt. Hon. Lord Hewart, Lord Chief Justice of England; Sir Squire and Lady Sprigge; Sir Ernest and Lady Hodder-Williams; the Rt. Hon. Viscount Burnham, C.H.; the Rt. Hon. Sir Louis Newton, Lord Mayor of London; the Rt. Hon. Lord Dawson of Penn, G.C.V.O., K.C.M.G., M.D.; the Rt. Hon. Lord Riddell; Sir Humphry Rolleston, K.C.B., M.D., President, Royal College of Physicians of London; Sir John Bland-Sutton, F.R.C.S., President, Royal College of Surgeons of England; Vice-Admiral J. Chambers, C.B., C.M.G., Medical Director-General, Navy; Lieut.-General Sir William Leishman, K.C.M.G., Director-General, A.M.S.; Major-General John B. Smith, C.B., President, India Office, Medical Board; Air-Commodore David Munro, C.I.E., Director of Medical Services, Royal Air Force; Lady Barrett, M.D., M.S., President, Medical Women's Federation; Sir George Newman, K.C.B., M.D., Chief Medical Officer, Ministry of Health and Board of Education; Sir Berkeley Moynihan, Bt., K.C.M.G., Professor of Clinical Surgery, Leeds; Miss Louisa Aldrich-Blake, M.S., M.D., Dean, London School of Medicine for Women; Sir Charles Sherrington, G.B.E., President, Royal Society; Sir William E. Berry, Bt.; Sir William Hale-White, K.B.E., M.D., President, Royal Society of Medicine; Dr. Herbert Spencer, President, Medical Society of London; Sir George Buchanan, C.B.; Sir Richard Douglas Powell, Bt., K.C.V.O., M.D.; Sir John Tweedy, F.R.C.S.; Sir George Makins, G.C.M.G.; Sir James Hodsdon, K.B.E.; Sir Edward Coey Bigger, Medical Commissioner, Local Government Board, Ireland; Mr. H. J. Waring, M.S., Vice-Chancellor, University of London; Sir Anthony Bowlby, K.C.B., K.C.M.G., K.C.V.O.; Sir Archibald Garrod, K.C.M.G., M.D., F.R.S., Regius Professor of Medicine, Oxford; Sir Walter Fletcher, K.B.E., F.R.S., Secretary, Medical Research Council; Sir Stanley Leathes, K.C.B., First Civil Service Commissioner; Prof. T. K. Monro, Regius Professor of Medicine, Glasgow; Mr. C. P. Childe, F.R.C.S., President, British Medical Association; Prof. R. A. Bolam, O.B.E., Chairman, Council, British Medical Association; Sir Dawson Williams, M.D., D.Sc., C.B.E.; Major Ian Hay Beith, Chairman, Society of Authors; Mr. H. A. Gwynne; Mr. H. T. Cadbury; Dr. A. D. Brenchley, Senior Warden, Society of Apothecaries; Sir John MacAlister, Secretary, Royal Society of Medicine; Mr. Sheriff R. Christopher Sennett, and Mr. Sheriff T. Middleton Dron.

The vice-chairmen of the different tables were Mr. Willmott Evans, Mr. James Berry, Dr. Marguerite Kettle, Mr. H. D. Gillies and Dr. J. H. W. Laing (hon. secretaries), Mr. Percy Hodder-Williams, Dr. E. C. Morland, Dr. R. A. Young, Dr. John Freeman, Dr. W. Essex Wynter, and Mr. R. E. Sare (general manager of THE LANCET).

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Dr. J. H. Yolland, Dr. R. A. Young, C.B.E.

THE LOYAL TOASTS.

Proposed by the Chairman (President of the General Council of Medical Education and Registration).

After the Grace, said by the Rev. A. Whitaker Oxford, M.D., Sir DONALD MACALISTER gave the toast of "The King." He said: His Majesty has been graciously pleased to accept a diploma form of the honorary Fellowship of the Royal College of Surgeons of England, but with equal graciousness he has been pleased to refrain from presenting, or causing to be presented, that diploma before the General Medical Council for registration. He has thus most considerately relieved that body and its President from an embarrassing situation, for which act of grace they are humbly and respectfully thankful; but His Majesty has given abundant and most welcome proofs of his deep personal interest in the physical health and well-being of his subjects, and of his personal sympathy with the ministrations of the medical profession directed to that end. For that reason I ask you, not as loyal subjects only, but as loyal members of that profession of which His Majesty is himself an honorary member, to join me pledging enthusiastically His Majesty's health and happiness, and long prosperous reign over us. In the old words, I give you, "The King, God Bless Him."

This toast having been drunk with expressions of enthusiasm, the CHAIRMAN gave the toast of "The Queen, the Queen Mother, the Prince of Wales, and Other Members of the Royal Family," remarking: What can I say more or better than that they in a thousand ways are ever showing forth the gracious spirit that animates them in the furtherance of those works of benevolence associated with healing and the relief of human suffering which lie within the special province of our profession. In no previous reign and in no other country have the Queen and the other members of the Royal House held a higher place in the affections, professional as well as domestic, of all who are called, whether as doctors or nurses, whether in the war-like services or in civil life, to safeguard and promote the public health. For their devotion

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to that end we give them our loyal and continuing gratitude. In testimony of our affection—our loyal and admiring affection—I ask you to drink with me to the Queen, Queen Alexandra, the Prince of Wales and the other members of the Royal Family.

In calling upon the Rt. Hon. Lord Hewart, Lord Chief Justice of England, to propose the toast of the profession of medicine, the CHAIRMAN said: There is an ancient Latin tag, *Salus populi suprema lex*, but as the compulsory study of Latin is no longer enforced for medical qualifications, at least in London, I will translate for the benefit of the ladies: *salus populi*, the medical profession; *suprema lex*, the Lord Chief Justice of England.

"THE PROFESSION OF MEDICINE."

Toast Proposed by the Lord Chief Justice of England.

Lord HEWART said: It is an honour and a pleasure to propose the toast of medicine. I am forcibly reminded of a rather ancient story about Lord Palmerston at a Ministerial whitebait dinner at Greenwich. It was said of him that he looked at the dish of appetising whitebait that lay on the table before him, then took a glance at the interesting countenances of his colleagues in the Cabinet, and said: "Do let us follow the excellent example of these wise little fishes; let us drink a great deal and say nothing." This always seems to me to be an excellent maxim for a festival occasion. I never felt the truth of it more than I do to-night. Perhaps this is not solely, although mainly, a festive occasion. You, Mr. Chairman, in that brilliant, but, I regret to say, inaccurate translation of the phrase which you have just used coupled medicine and law. While there is no doubt a close association between medicine and law, both the legal profession and the medical profession receive unstinted and universal gratitude and appreciation. These two professions have very few critics. It was never said, so far as I know, of the medical profession that it had ever devoured widows' houses. With the single exception of the law, there is no profession more devoted to the art of healing than the medical profession. With the single exception of the law, there is no greater, no wiser, no more humane profession than that of medicine. I will go one step further and add that next to the law there is no more ancient profession than the medical profession. At a gathering about a year ago there were those who traced the history of the medical profession back to Herodotus, and reference was made to the ancient art as practised among the Egyptians. There were those who carried the history back to Homer. But there was one—the Prince of Wales—who carried the history back to the Garden of Eden, and he said that already in those comparatively early times Eve had learned the truth that "an apple a day keeps the doctors away."

May I, however, say one serious word upon a matter which has recently come before the public and is likely in a different form at no very distant time to come before the public again. It is often said that upon the difficult question of insanity, as it is understood by the law, there is a serious conflict between the view of the lawyer and the view of the physician. I express no opinion on that matter, but there has recently been set up a committee of lawyers who have inquired into the matter, and, as I understand, the report of that committee contains a recommendation for something which, if adopted, will undoubtedly mean a wide expansion of the criminal law. At present if a person is to be held not responsible for a crime upon the ground of insanity, he must fulfil one of two tests. He must satisfy one of two conditions, either that by reason of infirmity of mind due to disease of the mind he must not know that what he is doing is wrong, or he must not know what he is doing at all. That is an ancient maxim of English law. Medical science is, I understand, not satisfied with those two alternatives. It suggests at least a third alternative—that a man may know what he is doing and may know that what he is doing is wrong, and yet by reason of disease of mind may be uncontrollably compelled to commit that act. It is this condition which, I understand, is now recommended by the committee upon the advice of eminent specialists. I express no opinion, but one thing is clear. If that is indeed to be the law—and *salus populi suprema lex*—I do not suggest that we shall launch out upon a sea which has no shore, but, at any rate, we shall launch upon a sea of which the shores are far more widely separated than are the shores which, as lawyers, we have hitherto known.

Before I sit down, I will just say one word upon the more immediate occasion of this gathering. This is, as you all know, the hundredth anniversary of the existence of that great medical publication, THE LANCET, and in the presence of those who are immediately responsible for it I will refrain from expressing the compliments which, if they were absent, we should all be disposed to express. But one may say that it is fortunate indeed for the medical profession and for the public of this country that it so long had, and now has, a periodical of that distinction, that knowledge, that wisdom, and, may I add, that public spirit. I have the honour to couple with the toast two names which are household words to the medical profession throughout the country, the name of Sir Humphry Rolleston, President of the Royal College of Physicians of London, and Sir John Bland-Sutton, President of the Royal College of Surgeons of England.

Response by the President of the Royal College of Physicians of London.

Sir HUMPHRY ROLLESTON said: To respond to such a far-reaching toast as the profession of medicine on such an occasion and before such a representative and highly critical assemblage is a proud honour, but not without serious responsibilities. On this unique anniversary our thoughts are naturally directed to the century of medicine that THE LANCET has chronicled so faithfully, and indeed at times painted in somewhat dramatic colours, thus exerting an influence at times stimulating, at others counselling moderation, and always wholesome. During this eventful period—by far the most momentous in medical history—the picture has completely changed, the science of medicine has been revolutionised; the art has made giant strides. So much so, that whatever the condition of the body politic, and at the moment "tranquillity" is hardly the word, we may feel tempted to adopt the attitude of Dr. Pangloss to the effect that the present is the best of all possible eras of medicine, and certainly there is some excuse for laying such flattering unction to our souls.

The last hundred years has seen the rise and results of laboratory research in medicine. So far back as a hundred years ago the modern laboratory idea originated, for in 1824 Purkinje's physiological laboratory in Breslau and in 1825 Liebig's chemical laboratory in Giessen were established; for a time progress in these directions was slow, but the leading position of British physiology and neurology must be regarded as the outcome of this method of investigation. The middle third of the nineteenth century was pre-eminently that of structural pathology, while the remaining part of the century saw the rise of ætiology after the founding of bacteriology by Pasteur and Koch; Lister's practical application of this new science to surgery was followed by Almroth Wright and the dictum that "the physician of the future will be an immunisator"—an ideal not yet finally accomplished. With the inspiration of ætiology, preventive medicine, especially in tropical diseases, has, under the guidance of Manson, Gorgas, Ross, and others, led to enormous saving of human life, and untold economic benefit to mankind. The present century is the era of research into functional disorder, of biochemistry or the further stage of physiological chemistry, of chemotherapy, and of comparative medicine and pathology.

A remarkable feature of quite recent years, dating mainly from the war and after, is the increasing share taken by the Government in the prevention and control of disease. The Medical Research Council, appointed in June, 1913, like the panel system, the offspring of the National Insurance Act (1911), has all the enterprise, enthusiasm, and originality of youth. Its success under the direction of Sir Walter Fletcher is an answer to the fears that Government control must strangle initiative in the coils of red tape. The Ministry of Health has enormously expanded the province under the control of the old Local Government Board, and what it will do in the future it is possible only to guess by reading between the lines of its chief medical officer's reports. What the future may bring forth in the way of State service and State-run hospitals remains to be seen, and though this consummation does not appear to be devoutly wished for, it should be considered with an open mind.

In the past British science and medicine has been much indebted to independent individual effort, but with the increasing specialisation of knowledge combined effort or team-work is becoming more general both in research and in clinical practice. In the case of research this does not mean that the influence of the individual genius will be dwarfed, but rather that side-issues and details will be worked out in due proportion. Research has largely taken the form of the application of methods in the allied sciences, such as chemistry and physics, to clinical medicine, and by these means and by the great advance in preventive medicine, knowledge and control have been gained to a greater extent over the external forces of Nature acting on the body than over the methods of reaction of the human body to external influences ; the early stages of disease still remain a problem for extensive investigation, as Sir James Mackenzie has so often insisted.

But what of the future ? While congratulating ourselves that we are not as the early Victorians, ought we not to reflect that we are only just looking out on the promised land of health and are far from a position to rest complacently on our oars ? We should realise that what Wakley's days are to the present, so will our position be to the editor and readers of THE LANCET in 2023.

Response by the President of the Royal College of Surgeons of England.

SIR JOHN BLAND-SUTTON said : In every form of religion among people, savage or civilised, men have believed that gods, from time to time, assume the forms of animals and, in fleshly garb, render service of a supernatural kind to mankind. Physiologists have proved that the condition of human beings, rich and poor, is not under the influence of gods or demons, but our gross bodies contain small bodies, called ductless glands, which make, and secretly discharge, occult fluids into the blood-stream to be distributed throughout the body for good or for evil !

It is on the action and interaction of the gods in our glandular pantheon that life and health depend ; also our fatness or thinness ; morality or moroseness ; wit or wantonness. They can make us famous or notorious ; giants or dwarfs. Should one of the gods be too active, or idle, the balance is upset, and clever physicians study the signs and symptoms, and frame a diagnosis, which to the patient, often seems like an act of divination. He then endeavours to restore the balance by administering an extract of the corresponding gland of a chimpanzee, armadillo, calf, goat or an A double S.

To-day, the treatment of diabetes engrosses men's minds. This involves the consideration of sugar. Interesting stuff is sugar whether we regard it in relation to the world of commerce, or the realm of science. Enormous fortunes have been made, and lost, in the production of sugar. It has entailed as much misery on human beings in the West Indies as ivory to the natives on the West Coast of Africa ! The over-production of human sugar is a source of much misery to thousands upon thousands of patients. It is a matter of interest to the physiologist, a source of profit to the physician, and dismay to the surgeon. Unsuspected sugar in the urine is a serious obstacle to an operation. It is like an uncharted rock to a mariner. The discovery of the relation of the pancreas to diabetes came as a surprise. The islets of Langerhans, at first mere histological curiosities, are of more importance to mankind than the comet reported to be visible in the constellation of the Ram.

Recently I was dining in the company of physicians, some of them eminent ; they plumed themselves on the fact that doctors, existing on human sickness and frailty, do their best to destroy the provocative agents of disease which enable medical men and women to make some sort of a living. This encomium does not apply to insulin, because patients who can afford to buy it must have the stuff administered by a doctor of skill. I can say in all sincerity, the discovery of insulin has seriously increased the cost of sugar to the producer. On careful inquiry I find that the treatment of a rich diabetic by a fashionable physician with this newly discovered preparation amounts to £700 or even £1000 yearly. This would, of course, include the cost of the insulin and the regular quantitative estimation of the blood-sugar by a laboratory authority. Let us fervently hope that some brilliant biochemist will discover a synthetic drug or a coal-tar product which will make diabetics independent of insulin. If such a substance were produced and be easily purchasable, like aspirin, some enterprising druggist would make an enormous fortune. Such a successful man might turn philanthropist, devote a portion of his wealth to rebuild the Royal College of Physicians, and also provide pensions for physicians who had been impoverished by the absence of diabetics from their consulting-rooms.

If Thomas Wakley could revisit the scenes of his strugglings and strivings, the contemplation of such changes would surely make him gape with astonishment !

"THE LANCET."

Toast Proposed by the Professor of Clinical Surgery at the University of Leeds.

SIR BERKELEY MOYNIHAN said : The pleasurable duty has been laid upon me of proposing the toast, "Prosperity to THE LANCET," a toast which will be most cordially and sympathetically welcomed by everyone here to-night. There is no man but wishes well to his friends, and THE LANCET, throughout the lifetime of us all, has been the good friend of our profession, and of every member of it, and of every interest the profession upholds. It has inspired, guided, and embodied the opinion of our leaders. It has helped to interpret for us our duty to the high cause we serve, to the public, to our professional brethren, and to ourselves. And all this has been done without fuss or clamour, with fair and gentle statement on every issue, strong where strength was needed, but at all times persuasive rather than compelling, and certainly in every way free from taint of self-interest or the least suspicion of other unworthy motive. What, then, can we do but pray for continued "Prosperity to THE LANCET" ?

The methods of THE LANCET were not always so gentle. A hundred years ago the profession was the victim of many gross abuses, the chief of which were imposed upon it by men within its own ranks. The Apothecaries Act had been passed only eight years before THE LANCET first appeared. There had been neither time nor opportunity nor any inclination to organise the profession. Indeed, organisation of our profession for united action in any cause however good, on any occasion however opportune, under any auspices however favourable, seems even now almost unattainable. In those days the profession suffered many things, both vexatious and intolerable. The shameless practice of nepotism, the harsh and unjust ordinances of governing bodies, the despotic methods of teachers and examiners, rankled in the minds of men. Yet there was no redress; the submission, the subjection even, of students and practitioners alike was complete. And then THE LANCET came, and all was changed.

It was an age of unrest when men had ceased to reverence authority. The revolt of America, the French Revolution, the juggling with thrones and with peoples that was the sport of Napoleon, had all unsettled the minds of men and made them impatient of sceptred control. Rebellion was in fashion. THE LANCET, conceived in a spirit of reform, was nurtured in this atmosphere of revolt, and Wakley lost no opportunity for the display of vivid and unfaltering courage, when he set out to attack privilege founded on injustice and used only for selfish ends. His first and avowed aim was the dissemination of accurate medical knowledge, but in such a time so narrow a restriction was hardly possible. It was not to be imagined as the sole purpose of such a man as Wakley. Of him, his character, his ideals, his methods, we have learnt all that we know from the life written years ago by THE LANCET'S present Editor. As we look back we can see that Wakley's principles were in almost every instance right. His modes of procedure were at times crudely conceived and they were often conducted with the most savage rancour. He was fighting selfish interests deeply intrenched, interests completely disdainful and neglectful of the rights of others, and it is possible that no other methods than his would so surely have effected his purpose. His onslaught was terrific, in virulence, in volume, and in nagging persistence. He bestowed just enough praise upon individuals, and upon the conduct and results of operations to make his criticism of failures even more devastating. His evident affection and high regard for Sir Astley Cooper, "the Prince of Surgeons" in his day, did not save Sir Astley's relatives from the bitterest taunts. When Sir Astley assailed the practice of extreme salivation by mercury in the treatment of venereal disease, the surgeons to the Borough Hospitals were held to be arraigned. In his next lecture, Sir Astley Cooper asked: "Who are the men, gentlemen, against whom it has been supposed that these observations were directed? Are they men whom I could possibly feel disposed to injure? Mr. Travers was my apprentice, Mr. Green is my godson, Mr. Tyrrel is my nephew, Mr. Key is my nephew, Mr. Morgan was my apprentice." His very defence, you observe, was an admission of his guilt in respect of the nepotism of which Wakley so constantly accused him.

A favourite butt for Wakley's ridicule and invective was Sir William Blizard, an old gentleman for whom I have acquired a certain affection. For as I sit in the Council Chamber of the Royal College of Surgeons his portrait confronts me, and I seem in the lapse of years to have learnt to know and respect him. Wakley, describing in a few brisk phrases the surgeons of his day, tells us that Abernethy "consigns an examinant's eyes to perdition," and that Blizard avows a "horror of hats." In his category of surgeons, Wakley says, "there are some who shed lustre on their profession, some who cant, others who re-cant, and one who desires members of the College to take off their hats." Wakley inquires whether the proceedings at the Royal College of Surgeons can be opened in any other manner than by Sir W. Blizard desiring the members "to take off their hats," and he suggests that Blizard might take a lesson from an anecdote of the ancestor of the Prince de Levi, which shows that there is no rational or religious foundation for such a horror of hats. The Prince de Levi, who piqued himself on the antiquity of his family, showed to a lady, who visited him at Paris, his pedigree from the Flood; and when it came to the birth of Christ, De Levi's ancestor was represented as standing by the Virgin and Child, with his hat off, and there was a scroll from the Virgin's mouth saying, "Mon cousin, mettez le chapeau." "Pray, cousin, be covered." A few weeks later in an account of visits to the various hospitals, interesting cases are related from the Middlesex and Westminster Hospitals, but of the London Hospital this is recorded: "The only case of interest at this hospital, for a long time, has been that of Sir William Blizard; the congenital irritability of this patient of late has materially diminished. This happy and beneficial effect is attributed to the judicious application of 'The Lancet.'" Sir William was finally the subject of the first "medical portrait" which appeared in THE LANCET in 1833, when the victim was just 90 years of age and within a year or two of his death. The portrait was ruthless and vindictive, but its subject, far advanced in years, practising and teaching effete methods, and still tenacious of high office, did certainly group within his own person many of the offences to which Wakley was so bitterly opposed.

To Wakley's achievements we owe both admiration and gratitude. His robust and fearless independence, his faith in great causes, his loathing of injustice, his frank disdain for professional eminence based upon the favour of others and not upon industry that has been sternly tested and intellectual supremacy that has been fairly and openly won, all appeal to us. His pungent wit, his blistering satire, his merciless invective, all attract us, for though they are harshly, they were never once, I think, unfairly used. Men such as he are called into being in all countries, but especially perhaps in our own, when the human spirit is roused to violent upheaval and embittered antagonism by the exercise of power bereft of true authority, of strength devoid of right, of control dictated only by caprice.

But destruction, malicious or not, was by no means the only effect of Wakley's labour. It is, perhaps, a fair claim that no man has contributed more than Wakley to the constructive work which has distinguished the growth of our profession in the last century. It was at his instigation that Warburton's Committee (upon which served a kinsman of my own) was formed. The Medical Act of 1858, the charter of our profession, was certainly due more to him than to any other man. He formed an intellectual alliance with other countries, chiefly with France. He published the lectures of Dupuytren, Magendie, and Andral, and Cooper's lectures published by him were translated for the French journals. And as the years passed by he drew to himself, in steadily increasing numbers and sometimes into close association, those members of our profession who sat, or were soon to sit, in high places, and who in no small degree directed the professional destinies of their fellows. He sacrificed no single principle, but remained to the end obdurate and unwavering in his defence of what he believed to be right and in his relentless assault upon what he knew to be wrong. It was the conversion of others to *his* views, the recognition that his causes were just, that finally established him in the opinion of all men as the greatest of our reformers, and as a true benefactor to our profession. The monuments that are raised to the memory of our benefactors are of every order. Some are carved in stone and some are cast in bronze. The greatest memorial to Hunter is the incomparable museum that bears his name, in our College. Mankind will foreever bear living witness to the genius of Lister. Many of you whom I see here to-night have your own memorial in the grateful hearts whose heavy load of suffering and of sorrow your strong hands have lifted. Few monuments are so noble, few will be so enduring as the journal which perpetuates the memory and the labours of Wakley.

From his day to ours THE LANCET has progressively grown in influence and in authority. In its pages the story of the advance of medicine is steadily unfolded. With its help greater medicine, medicine in its full relation to the public welfare and the public safety has been inaugurated and its growth encouraged. The world is a little weary of journals, especially of those which seek an ever larger circulation, and ever greater power while a little unmindful of the high responsibility which rests upon them. Is not the first duty of journalism to educate, to draw the individual out of himself, to direct and enlarge his outlook, to create and foster a sense of his corporate responsibilities and to bring him, no matter how remote his home, into intellectual and emotional contact with his fellows; in a word, to be for him the messenger of light and truth? For such a task vigour there must always be, and humour will not come amiss, but honesty in search, sanity in exposition, with truth as the distant goal, are attributes of an ideal journalism. All these THE LANCET has long shown, and shows now more plainly than ever under its present Editor.

Of Sir Squire Sprigge I will not venture to express any personal opinion, but I may be allowed to say that in his hands the future prosperity of THE LANCET is assured. We all realise his unsurpassed knowledge of the wide and various problems covered in these days by the single word "Medicine." He has a keen and proper sense of the part which our profession ought now to play in its relations with the public. Resolute of purpose, he has integrity of thought, sobriety of judgment, and an admirable lucidity of expression. He enjoys in fullest measure the high regard, the trust, and the affectionate admiration of his professional brethren.

I ask you therefore—

In honour of the memory of its Founder,

In gratitude for all its labours towards the welfare of our profession,

In confident hope for its future,

to drink the toast, "Prosperity to THE LANCET."

Proposed from another aspect by the Proprietor of the "Daily Telegraph."

Viscount BURNHAM said: I am very proud on behalf of the newspaper press of this country to be allowed to join in proposing and toasting the famous journal the centenary of which we are here to celebrate. We are all here equally proud of that high tradition founded on patriotic motives and technical efficiency which has made THE LANCET what it is—the gospel and literally the good tidings of national health. We exult, too, in the spirit of independence it has shown, which has never brooked control, in the fullness of its knowledge, which is only bounded by the scientific attainments of its contributors, and by its love of truth, which is founded on the maxim that "Truth is the basis of all excellence." We of the daily and weekly press are too fond of imagining that we are the whole of the newspaper press, and we are apt to forget that part of it which is devoted to professional and technical interests, and of which some would say that the half undoubtedly is better than the whole.

I would say this, too, that whilst our circulation is in the main national, the circulation of such of the scientific press as is represented by THE LANCET is world-wide, and wherever you go in the British-speaking countries, or even outside them, you find that half of the British press upheld and recognised as setting a standard of veracity and initiative for all alike. Of that kind of paper THE LANCET is undoubtedly a fine example. Especially does that count when the world generally is getting rather tired of words, no longer believing that salvation cometh out of rhetoric, and is more inclined to turn to the things that really matter, whether they are clothed in beauty of phrase or not. I can say, too, that no paper has ever reflected in all its essentials the characteristics of its founder better or longer than THE LANCET. Its methods may now be more tender, but its principles are the same, and in its virility and sincerity it is the express image of Thomas Wakley.

The world knows, or anyhow cares to know, little of its greatest men, but if you have any sense of the reality of things you must recognise that Thomas Wakley was one of the makers of modern England. He declared against shams and make-believes, against quacks and all those who tried to deceive the public. He had no reverence for ancient abuses, nor did he believe in the interests that were vested in ignorance and brutality. Why he should have been inspired to do all he did because he was unfortunately mistaken for the hangman and despoiled of his goods by members of a political conspiracy, I do not know, but he made up his mind that his life was to be a crusade and a crusade he made it. He must have passed almost as much of his time in the law courts as he did in Bolt Court in the old offices of THE LANCET, and ten actions were brought against him in the early years of his strenuous journalism. But you whom he chastised have been singularly forgiving, because you honour his memory whenever it is mentioned. Undoubtedly when he first rose to fame the medical profession was not much further from those days when Bacon said: "It hath been more profound than laboured; and yet more laboured than advanced; rather in circle than in progression." How did he leave it? At the end of his stormy and strenuous life you know that, after being thrown out of the building by Bow-street runners, he opened the door of the College of Surgeons and freed it from the bonds of a close corporation. He made you as a profession recognise, for the first time, the rule of public responsibility, and he dispelled the professional obscurantism which had been the practice of medicine in the past.

He cleansed, so far as was possible in those times, the coroner's court, and insisted that the coroner ought to have the technical qualification which fitted him for the discharge of his duties. He forced the attention of the public to the question of the adulteration of food, and, through THE LANCET'S analytical commissions and by a Committee of the House of Commons prepared the way for the Scholefield Act, which for the first time protected the health of the community as consumers. All this he did, and I am glad to know that THE LANCET has always clung to the spirit of his work, and is to-day what its Founder would have hoped that it might always be. I can only hope that it may long be able to take its share in the inestimable work of reducing the sum of human misery, and adding to the great and essential quantity and quality of the public health. It has now passed into the possession of a firm of publishers whom we all know and honour, and I am certain that in the hands of Sir Ernest Hodder-Williams it will suffer nothing, either in its technical excellence or in honourable conduct.

Response by the Editor of "The Lancet."

Sir SQUIRE SPRIGGE said: It is usual at old school dinners, old college dinners, and similar functions to obtain a speech from a senior, who speedily drops into reminiscent vein and usually allows that when he was a lad he was a devil of a fellow. In such a connexion a bishop or a judge, by confessing to us that he once fought a river-side character on the boat-race day, achieves a success in words which may not have attended his fists. Now, of course, THE LANCET is a senior. In its youth it has been described to you as a devil of a fellow, an allusion made both by Lord Burnham and Sir Berkeley Moynihan, who gave me the exact opening, almost an invitation, to relate how in our youth we fought the bargees of nepotism and corruption. But I decline the invitation to be reminiscent, though with nothing but satisfaction at the memories evoked. The past outrageous energies can never be repeated by us. You see the distinguished men who have done us the high honour of being with us this evening. No doubt they in their youth resisted discipline and embarked on adventure. Perhaps without such individuality they would never have gone so far, and it was a gallant sight, I am sure, to see them in their youth; but a brawling minister is unthinkable, and a bishop with a torn apron or a judge with his wig on the green would not only be a pathetic sight but their great future utility would be prejudiced by the episode; and it is to our career of extended utility that I wish to come. The violence of past days is gone, but the desire for the right and zeal to achieve it remain as forcible as they were 100 years ago, and we shall press towards the mark of our ideals with unabated energy, even though without the concomitants of egal struggles or personal bickerings.

We have had before us over the century two ideals —the maintenance of the status of medicine and the diffusion of medical knowledge—and to their accomplishment our best endeavours will be used. The Centenary Dinner of THE LANCET is a milestone on the road to progress, and not our obituary tombstone. And as for myself, while I thank you from the bottom of my heart for your kind reception of my association with this toast, I must say that I am only the robin sitting on the milestone twittering to call attention to the particular stage. We did not erect the stone; you gentlemen and your predecessors did that, and it is through your continued support and unvarying coöperation that we hope to mark the route of progress at future stages. We depend upon our friends, THE LANCET is, as it must be, a friend-made paper. relying on the good offices of its supporters who read each others' wisdom and clarify or correct each others' views. I also am a friend-made man. And I have called on the services of friends to a shameless extent through school, college, and professional days. I was at the best of schools, and the son of my headmaster and the medical officer of Uppingham School are here to-night. I was at the best of colleges, and my most distinguished contemporary, the President of the Royal Society, who also is here, has remained my friend since those days. I was at the best of hospitals, and its ornament, the President of the Royal College of Physicians, you have listened to. Through school, college, and hospital associations I have exacted levies from friends, and, as time went on, enlarging environment gave me enlarging opportunities for such exactions. So that I know that it is to others that I owe what you have accorded to me. Further, any measure of success which has been obtained has been in return for labours of love. It is they who have to discharge a dull routine and face distasteful duties whose devotion is really admirable. I have enjoyed myself. Medicine may be only one section of the world's activities, but it is an ever-developing and all-permeating one. It has been my delightful duty to record the phases and ramifications of medicine as they are produced and as they are justified by the workers themselves.

Response by the Chairman of "The Lancet."

Sir ERNEST HODDER-WILLIAMS said: I am indeed a very grateful and a very proud man to-night—very grateful to you, Lord Burnham, who have always been so good to mine and to me, for the very kind things you have said about our connexion with this great paper THE LANCET, grateful to all of you my lords, ladies, and gentlemen for the way you have received the toast. I am very proud to stand to-night in this place of a great tradition. Perhaps, under the circumstances, you will allow one personal reminiscence. In the days of my early manhood—and my father, whom I am delighted to see here this evening, will bear me out when I say that at that time one reached early manhood very early—I had the ambition to enter the medical profession, but the Fates, no doubt in kindness to my future patients—the Lord Chief Justice would, I am sure, advise me to add the magic legal phrase "if any"—decided entirely otherwise. They did not, however, altogether forget, and after many years they presented to me a grand old surgical instrument—THE LANCET—fashioned out of a material with which I had become somewhat acquainted. And when I use the personal pronoun may I say at once that I refer not only to myself but to all my splendid associates and very specially to the best of brothers. As proprietors of this paper we made a vow and we took a pledge—we have tried to keep them. The vow was and the pledge was that we would, as far as in us lay, do nothing which might leave the slightest stain of dishonour on a most highly honoured name. That pledge we have tried to keep, we shall try to keep in the future, even though it should mean —as in the case of Wakley—having our houses burned down and gutted, even if it means that we have to fight half a dozen libel actions in as many years, even if it means (which heaven forbid!) that one of us has to enter Parliament. Well, we must vote and see. We indeed were fortunate that when a change of proprietorship took place there was no change in the editorial leadership. From the moment when we first met Sir Squire Sprigge until now there has not been one single matter of policy—and matters of policy are vital to those who are responsible financially, and some people would say morally, for the contents of the paper—there has not, I repeat, been one single matter of policy upon which we have not been in spontaneous and complete accord, and I take this opportunity of thanking Sir Squire Sprigge and the whole of his staff for the way in which they have worked with us. It is a pleasure, and it is going to be a pleasure for many years to come, to work with them and for them. In these latter years laymen, business men and business women, have worked increasingly side by side with professional men and professional women in many fields of service of peace and of war, in none, I think, with greater honour to themselves and to their cause than in the field of healing. It is because of this that we business men who control the destiny of this grand old paper, THE LANCET, feel so deeply our responsibility, our privilege and our opportunity. If we can be of any service to you in scattering far and wide the fine grain garnered from your knowledge and your experience—if we can be of service to you in breaking up the stony ground, in rooting up and utterly destroying those tares of ignorance which still so often choke the finest growth—then perhaps we may have some small share in the joy of your reaping.

"THE GUESTS."

Toast Proposed by the Chairman of the Medical Consultative Council, Ministry of Health.

Lord DAWSON said: After so much brilliant oratory I should ill requite the kindness of our guests in gracing our feast if I submitted them to a recital even of their virtues. If we are right in saying that a man may be judged by his friends, surely this assemblage of varied callings and distinguished talents gives vivid and delightful expression to the appreciation in which THE LANCET is held. And in showing this generous measure of goodwill to THE LANCET you are showing goodwill to medicine, for in a very intimate sense we regard THE LANCET as belonging to ourselves. And I would suggest that professions have need of each others' understanding, and this is more and more true of medicine, for when in former days its scope was limited to the cure of disease in individuals it was possible for it to hold itself in almost monastic detachment from social progress. But in these days when the health of the community is within its orbit and is likely in the future to claim a dominant part of its attention, contact with other callings will be more close and its thoughts and conclusions will be a necessary part of sound statesmanship. And this deeper and steadier statesmanship of the professions will extend a beneficent influence to international relationships in that it will be untouched by those surface disturbances which rise and fall with the changing winds of political exigencies.

The presence of His Excellency the French Ambassador has delighted and honoured us, and brings to mind the admiration and affection which we hold towards our French colleagues. Our sympathy for them is too bright and pervading to be dimmed by any passing clouds of political difficulty. For us the genius of his people creates much for which civilisation stands, and in the field of medicine that genius is ever and abundantly manifest. We have enjoyed the presence of the Lord Chief Justice. It is with us as with all. The disciples of the law not only entertain thought, but can adequately place it, and the Lord Chief Justice has by the magic of the mind and to our enjoyment woven generous thoughts into the beauties of speech. The territories of medicine and law have increasing contact. We deal more with Nature's fashionings of man and they with man's fashionings of himself. Our friends of the Press, who, as always, are so generous in their support to-night, are feeling at the present time some of the difficulties which are apt to beset us. In the nation's present plight we notice in some quarters a conflict of advice, which recalls to my mind " How you doctors always differ," and elsewhere a certain doubt as to the prognosis which leads to what we doctors recognise as " expectant treatment "—a handling of the case which can be modified as circumstances dictate. Even in those Sunday papers which give guidance and entertainment to millions of readers, I find expectant treatment is the order of the day.

Our guests are so varied in their gifts that I could not with any approach to brevity appreciate them adequately. But may I make reference to Major John Hay Beith, known to us all as Ian Hay, who alike with sword and pen has rendered great national service. There is another guest to whom one and all will extend a special welcome, the great-grandson of the Founder of The Lancet—T. L. Wakley, now at Oxford. The love of public service and fearless striving which has descended on him will serve him well, as he stands on the threshold of one of the most interesting periods of English history. We all wish him God-speed. The Lord Mayor links us with the history and administration of this ancient City, which, if so minded, could celebrate not one hundred but 800 years of existence. Moreover, he brings to us to-night not only the good feeling of the City of London, but the lustre of personal distinction earned in the field of civic administration. Sir Dawson Williams, who with the Lord Mayor will respond to this toast, has found in journalism the greatness of medicine and in medicine the greatness of journalism, and to our great advantage upholds the best in both.

This toast gives expression to our joy at the presence of our guests and of our friendship towards them. I give you the toast of " The Guests."

Response by the Lord Mayor of London.

Sir Louis Newton, said: On behalf of the guests I thank you for the delightful evening we have spent, and for the interesting and fascinating account we have had of the career of The Lancet during the hundred years of its existence. I am here to-night to show the great respect felt by the City of London for the eminent medical journal published within its walls. I am also here as President of the Hospital Sunday Fund to bear grateful testimony to the great share the Wakley family and The Lancet had in starting this Fund 51 years ago. Its success has been so great that nearly £3,000,000 have been raised on behalf of the hospitals of London. The Lord Chief Justice, in his interesting speech, showed you to his own satisfaction the close connexion between medicine and the law. Had I the time I might prove to you beyond question the close connexion—a very feeling connexion—between the City of London and medicine. I congratulate you on the fact that you are celebrating the Centenary of a publication of which you can be justly proud, and on my own behalf and that of the City of London, as well as on behalf of many bodies of sincere admirers, I give expression to the hope that The Lancet may live for many centuries to come.

Response by the Editor of the "British Medical Journal."

Sir Dawson Williams said: You, Sir Donald, enjoy a very high reputation with your profession, but I feel that on this occasion you are endangering your reputation for discretion and judgment. I appeal to you whether it has not been altogether superfluous to call on me at this late hour of the evening and after the Lord Mayor has so well expressed the thanks of the guests. I can only excuse you on the ground that I should be allowed the opportunity of speaking in the name of what I suppose is the smallest specialty in the medical profession—the specialty of medical journalism which I have followed for so long—and of offering to The Lancet our congratulations on attaining its hundredth year. Very few journals live for a century. To do so requires great powers of adaptation. Times change and journals change with them. The Lancet has had a succession of able editors, some of whom I have known, while in the hands of the present editor, my friend Sir Squire Sprigge, the vigour of the journal has not in any way diminished. A medical journal in these days, when medicine has become so complicated and the interests of members of the profession are so varied, could not exist unless it had the support of the profession. That sounds like a truism, but I am not thinking of subscription lists, but of the kindly support that comes to us in the many complicated questions with which we have to deal. Specialists in every department place their experience at our disposal. Various motives impel them to do so, the chief, I think, being a real love for their particular subject. They are moved also by the desire to help a brother, and perhaps by loyalty to a particular journal. The conduct of a general medical journal does not get more smooth. It has to some extent to correspond with the complexity of the science with which it deals, while another difficulty is the inordinate length at which so many authors want to write. It is one of the difficulties which beset all kinds of scientific societies. Even the pure mathematician produces in place of a column of text formulæ so long that they must be printed the wrong way of the page. A phenomenon of the time is the multiplication of special journals. It is an admirable movement and one which the general medical press must thoroughly applaud. The men who conduct these journals do so at great sacrifice. But the special medical journal is a sort of large scale ordnance map which a man gets when he is going to buy an estate and has to consider where the different buildings lie, while the general medical journal is the inch-to-the-mile survey giving a general idea of the lie of the country. I cordially associate myself with what has been said about The Lancet and the good wishes that all of us have for its future. It has achieved success because it has known how to meet the needs of the medical profession, and I do not at all doubt that it will continue to do so.

"THE CHAIRMAN."

Toast Proposed by the President of the Royal Society.

Sir Charles Sherrington said that this memorable occasion had derived no little of its success from the genial chairmanship of Sir Donald MacAlister. Late as was the hour, the gathering must not separate without heartily pledging his health.

The Centenary of a Medical Mission.—Sunday, Dec. 9th, will be celebrated as the centenary of the foundation of the Jerusalem Mission of the Church Mission to the Jews. As the work opened in December, 1823, and developed a dispensary side, under Dr. Dalton, an Irish practitioner, within a few months, the event also marks the centenary of modern medical missionary work. This became organised on a permanent basis by the starting in 1844 of a small hospital for the relief of sick Jews by Dr. E. Macgowan, an Exeter doctor, who had joined the mission. This was the forerunner of the fine hospital, the foundation-stone of which was laid in 1895 by Lord Northbrook, which stands to-day as a tribute to the 28 years' work of Dr. Percy d'Erf Wheeler, who went out from St. Thomas's Hospital to Jerusalem in 1886, and is still working for the society in the East End of London. Dr. Wheeler was succeeded for a time by Dr. E. Masterman, now of Camberwell Infirmary. The hospital is now in charge of Dr. H. J. Orr Ewing and Dr. K. W. Kingdon. Miss E. M. Barber is the matron, and is assisted by a staff of 15 British and foreign Christian, Jewish, and Moslem nurses. In-patients number about 1500 annually, and out-patients 6000.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh : Centenary of the Royal (Dick) Veterinary College.

A SERIES of meetings and social functions took place in Edinburgh last week to celebrate the hundredth anniversary of the Royal (Dick) Veterinary College, founded by William Dick in 1823. On Nov. 27th an "At Home" was held in the College by the Principal, Dr. O. Charnock Bradley, at which Sir John MacFadyean, in the name of Emeritus Prof. Duncan McEachran, F.R.C.V.S., of Quebec, Canada, presented to the College a portrait of its founder. In the evening an address was delivered in the University by Prof. Theobald Smith, Director, Department of Animal Pathology of the Rockefeller Institute for Medical Research, Princeton, New Jersey, on Comparative Pathology: Its Biological and Economic Significance. The chair was taken by Sir Alfred Ewing, who referred to Prof. Smith's work in showing Koch to be in error in contending that the bovine tubercle bacillus was not pathogenic to man. Speaking of the relation of animal to human pathology, Prof. Smith pointed out that with the exception of a few diseases, such as rabies, glanders, anthrax, and tuberculosis, most animal diseases did not affect man, but indirectly the relation of the two was important to the welfare of man generally. Thus the study of parasites in animals, such as ascaris in rats and pigs, had pointed the way to treatment of the similar condition in man. Even more generally, comparative pathology was likely to be of service, for the underlying cell processes were the same in all animals, and the study of lower animals in which the factors were less complicated was bound to be of value.

Some Aspects of the Tuberculosis Problem.

At a meeting of the Medico-Chirurgical Society of Edinburgh, held in conjunction with the Tuberculosis Society of Scotland in the Royal College of Physicians on Nov. 29th, Prof. Theobald Smith delivered an address on Some Aspects of the Tuberculosis Problem from the Experimental and Comparative Standpoint. Sir Robert Philip was in the chair. In introducing Prof. Smith, Sir Robert Philip described him as a philosophic pathologist. Prof. Smith's address consisted of gleanings of some 40 years' experience of the problem. He said that the methods of attacking the tuberculosis problem might be grouped under three heads: (1) Preventive, (2) immunisatory, and (3) hæmotherapeutic. With regard to the latter, it was not extravagant to hope that something analogous to quinine in malaria or the arsenical salts in syphilis might be discovered. These might possibly be man's anticipation of methods to be adopted by nature. He went on to give a brief historical sketch of the various problems which had arisen in connexion with tuberculosis since the discovery of the bacillus by Koch in 1882. First came the great attack on the disease from the public health standpoint; then the dramatic introduction of tuberculin in 1890 with its enthusiastic and sanguine reception followed later by disappointment; then arose the discussion as to the path of entry of the bacillus. In 1901 came Koch's dogmatic assertion that the bovine tubercle bacillus did not cause disease in man, and its ultimate refutation. In this connexion Prof. Smith referred to a paper of his own, published three years earlier, pointing out the differences between the two forms. There followed the dispute concerning infection in infancy and childhood, and after that the still disputed question of super-infection. He went on to discuss the contribution of comparative pathology to the solution of these various problems. From this point of view the subject might be approached in one of two ways: by (1) experiments, (2) numerous and thorough autopsies. Experiments were unsatisfactory owing to the modification of the virus by culture. He had had the opportunity to perform 500 autopsies on cows. These presented a series of all stages of the disease. In the majority of these the thoracic lymph glands only were affected. From the distribution of the glands it was possible to say by which part of the respiratory tract the bacillus had entered. In the majority this was the posterior lobe of the lung, corresponding to the lower lobe in human subjects. The frequency of apical infection in man was very possibly due to suppression of the disease in the lower lobes and the greater susceptibility of the upper. Primary disease in cattle was lymphatic, as in children, but the diseases of cattle corresponded to those of childhood and adolescence, as cattle for the most part were killed young. When infection was proved in more than one system, the lesions were all found to be at the same stage, a finding which suggested immunity to fresh infection. The results of the so-called bovo-vaccination experiments showed that in the vaccinated animals the lung lesions were of a broncho-pneumonic character and comparatively mild, whilst those of the controls were miliary and rapidly fatal. This suggested the protective value of small tubercle injections. Public health measures had probably not actually shut the door, as it were, but had reduced the draught. Vaccination, which is nature's method, could not after all be expected to do more than nature, which eliminated the weak. From this point of view there were three groups—namely, those of high resistance for whom vaccination was unnecessary; those of low resistance upon whom it was useless; and those between the two for whom it probably did good. As a biologist he was not hopeful of elimination of the disease, but as a medical man he exhorted all workers to optimism.

The Treatment of Diabetes.

At a meeting of the Partick and District Medical Society on Nov. 22nd Dr. John Gracie delivered his presidential address on Diabetes and Insulin. In the treatment of diabetes, Dr. Gracie said, the essential point was to maintain the blood-sugar well below the threshold value, so that the islet cells of the pancreas might be rested and thus given a chance to regain their full functional activity. The only way to ensure this was by the routine examination of the blood-sugar, since the method of keeping a trace of sugar in the urine not only meant that the islet cells were not being rested, but also might even fail to reveal a hypoglycæmia of transient type. The method adopted by Dr. Gracie was to give all the carbohydrates in the estimated diet in two meals. The dose of insulin was given one hour before each meal, and a blood-sugar estimation performed three hours after the meal. Much stress was laid upon the necessity of combining dietetic with insulin treatment, a necessity not always appreciated by patients whose information was gleaned from the lay press. A basal diet ought always to be calculated, and should be upon a basis of 25 cal. per kg. of body-weight per day. This must include 1 g. protein per kg. of body-weight, while the remainder of the diet was made up of carbohydrate and fat; the former calculated by starving the patient until his urine was sugar-free, and then cautiously adding measured amounts of carbohydrates each day until sugar again appeared in the urine. The type of case suitable for insulin was the one in which a basal diet could not be reached without its aid. Dosage could be estimated upon the basis that one unit of insulin metabolised 2½ g. carbohydrates, although the initial dose should never be sufficient to eliminate sugar from the urine entirely, lest the lack of glycogen in the liver led to hypoglycæmia. He had found that the best diet was one in which the fat only slightly exceeded the protein, his most satisfactory continued diet having been one of carbohydrate 68, protein 114, and fat 127, combined with 30 units of insulin daily—a diet 800 calories over the basal requirements of the case. Additional points of interest were the facts that each change of diet led to an increase in the urinary sugar—even when the carbohydrate in the diet was reduced—the quantity of insulin being kept constant; and that when a constant diet was maintained the quantity of sugar in the urine always decreased.

On Nov. 23rd Dr. George A. Allan delivered to the Ayrshire Division of the British Medical Association an address entitled Diabetes Mellitus and its Treatment by Insulin. In considering the actual indications for the use of insulin, Dr. Allan held that the more severe the case the more necessary was the treatment and the safer its administration. In coma the results might be brilliant. From the point of view of the general practitioner, who had not the time to devote to blood-sugar estimations, two methods were available. In the former the carbohydrate tolerance was first determined, and the diet was then raised to basal requirements by the gradual addition of carbohydrate and fat, insulin being given before the morning and midday meals in the ratio of one unit of insulin to each additional 2 g. of carbohydrate added. In the second there was no period of starvation, and the patient was put at once on a diet which contained protein well within the ½ g. per pound of body-weight; about 20 g. carbohydrate were added, and fat up to one and a half times the available carbohydrate. If glycosuria persisted, small doses of insulin were given until the urine became just sugar-free. Omission of the blood-sugar tests was never wholly safe, but he warned his hearers that the performance and interpretation of these tests required much practice before the results could be depended upon.

The Lister Ward.

The managers of the Glasgow Royal Infirmary have received a further series of appeals for the preservation of the Lister Ward, from a number of corporate medical bodies—British, colonial, and foreign.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

An Open Letter on the Teaching of Sex Hygiene.

THIS year the Interfraternity Conference[1] submits the annual report of its Social Hygiene Committee in the form of an open letter to the faculties of American colleges and universities. It is entitled "An Appeal for the Greatest Personal and Social Health for Students." The letter avoids with scrupulous care the laying down of any fixed standard for teaching sex hygiene, at the same time suggesting some general principles which may be applicable to the various colleges to whom the letter is addressed. Most students, they assert, come to college with very partial and even false notions of the place sex has in normal personal and social life. Many have already entered upon anti-social sex-expressions; others who have really social standards and ideals in reference to sex hold these without intellectual understanding, and accompanied often by unsatisfied emotional tensions. It is certainly futile to enforce dogmatically on such students the orthodox restraints of convention. The Committee believes it to be equally pernicious merely to place before immature and highly sexed young people the biological, psychological, and social facts and theories about sex in a coldly scientific way, and leave them to make an inexperienced and unguided choice of reaction in emotion and conduct. The facts and theories should be taught and sympathetically interpreted. The whole social life and relations of the institution must constitute a practical example of the working out of its ideals. An account is given of various methods that have been used to teach sex hygiene in American colleges. The occasional lecture, though it may have its place, is felt to be quite inadequate to meet the whole need of the students. A unified course, obligatory for all freshman students, is another method. The Committee feels it desirable that such a course be given by one lecturer, whenever a man with the requisite ability can be found. Again, the subject may be naturally introduced into various courses, such as those in biology, psychology, physical education, personal hygiene, English literature, and sociology. Among the "facts and theories" which ought to be expounded are the following: the nature and significance of reproduction, the nature of sex and its relation to reproduction, the influence of heredity and environment upon the individual, the phenomena and explanation of puberty, the relation of sex and its development to emotional, æsthetic, and social life, the evolution of parenthood, the home and family life, true monogamy as the corollary of sex equality, the making of a successful home.

The following are considered to be fundamental fallacies which must be frankly dealt with: (1) That sex intercourse is necessary either to man or woman for perfect sexual development, for bodily or mental health, or for happiness and usefulness. (2) That abstinence is impossible for men. (3) That men have some special rights of indulgence which cannot be allowed to their mothers, sisters, wives, and daughters. (4) That a period of sowing "wild oats" is necessary for the development of sexual control and poise. (5) That continence is a sign of weakness. (6) That a man who has enjoyed a gross sex life can subsequently enjoy completely the happiness of equal democratic marriage. (7) That illicit sex intercourse is at worst an indiscretion. This paper is clearly the result of careful thought and investigation; it deserves consideration by the numerous body of teachers to whom it is addressed. The problem in England may be somewhat modified by the more highly selected character of university students, but it is not impossible that this study might also prove suggestive to English professors and deans.

Public Health Exhibit in New York.

During the week Nov. 5th–12th the U.S. Public Health Service, in coöperation with the American Marine Association, held an exhibit at the Grand Central Palace, New York, demonstrating the health work carried on among American seamen. The exhibit covered some 800 square feet of floor space, and included surgical and dental and X ray equipment, apparatus for hydrotherapy and physiotherapy, a model ship's medicine chest, and so forth. The latter item, designed for a crew of from 40 to 60 men, attracted a good deal of attention. The names of those interested in this chest were recorded, and full particulars will be furnished to them later by the U.S. Health Service. Also a manual entitled "A Ship's Medicine Chest and First-aid at Sea" is said to be now in preparation, and will be mailed to those interested as soon as it is printed.

Lecture demonstrations and first-aid courses have now been established by the Public Health Service in 43 American cities. Medical advice is given by radio upon request from vessels at sea by the stations at New York, Key West, New Orleans, San Francisco, Honolulu, and Manilla. Numerous cases of serious illness have been successfully handled by wireless diagnosis and prescription.

INDIA.

(FROM OUR OWN CORRESPONDENT.)

Cholera in Bombay.

THE cholera epidemic which occurred in Bombay in the rains subsided in the first week of September. 274 cases in all were notified in the months of July and August, and of this number 155 proved fatal. A striking feature in the epidemic was that the number of cases notified daily having risen to an average of 25, fell from 26 on August 2nd to eight on August 3rd, the day on which the amount of bleaching powder added to the city water-supply was increased from 4½ to 7 lb. per hour. From this date onwards the number of cases continued to fall till no further notifications were received. It was a singularly unkind fate which decreed that the results should thus have been too good by a few days only to be true, and too immediate to enable the Health Department to accept without reserve the credit of terminating the epidemic by sterilising the water. Certain features in the outbreak suggested the possibility of water-borne infection. The cases were widely scattered, and in the only ward receiving no water from the lake supply under suspicion no case occurred in July, whilst four only occurred in August. On the other hand, 28 imported cases of cholera, chiefly among pilgrims, had occurred in the city in the month of June, whilst cholera was rife in June, July, and August in districts communicating freely with Bombay. Further, whilst cases were notified by ones and twos in each of the seven wards of the city, epidemic incidence was limited to C ward, where 103 deaths occurred as against a maximum of 16 deaths in the other six divisions. This unequal incidence in wards, mostly supplied from the same source, is against the theory of water-borne infection, but however this may be the water-supply of the city is in the near future to be above suspicion. In 1925 the water from Tansa Lake will be brought throughout its course of 70 miles in closed pipes, instead of passing as at present through 26 miles of a dilapidated masonry aqueduct into which quantities of surface water find their way during the monsoon. Chlorination can be carried out at any time, and a scheme has been prepared for providing the added safeguard of passing the whole of the supply through rapid filters.

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[1] Secretary, A. Bruce Bielaski, 120, Broadway, New York.

Dengue.

Dengue, a familiar visitant in Calcutta, has till recently been rare in the Bombay Presidency. Early in the year, however, cases began to occur in the city of Bombay, and were followed by a considerable epidemic which has now begun to decline. The disease has also appeared in other parts of the Presidency, in Delhi, and elsewhere. The patients, as usual, find they are by no means out of the wood on the termination of the acute attack, and many suffer from pain in some muscle, tendon, or joint for a number of weeks after resuming their ordinary mode of life. The comparative immunity to the disease hitherto enjoyed by Bombay is difficult to explain, and is in any case not due to any dearth of the reputed carriers—*Stegomyia fasciata* and *Culex fatigans*.

Humidification in Indian Cotton Mills.

A valuable report on Humidification in Indian Cotton Mills by T. Maloney, M.C., has been received by the Government of India. The report shows that even at very high wet-bulb temperatures the body temperature of the workers in mills does not at the end of a day's work rise any higher than it does among workers in other trades under better conditions. Fatigue and a consequent fall in efficiency is, however, well marked at the end of the day. Whilst the physique of the average mill-hand is poor, that of the weavers, contrary to expectation, was found to be better than that of workers employed in other departments under less trying atmospheric conditions. This is probably due to the fact that those of poor physique cannot stand the strain of work in the weaving rooms. Weight decreases after a few months' continuous service in a mill, and apart from actual signs of tangible injury to health there is abundant evidence to show that the workers suffer from subjective sensations of discomfort and distress. As to the practicability of reform it is of interest to note that in one mill run on model lines, notwithstanding the tropical climate, the temperatures compare favourably with those often recorded in some English mills during the summer months.

Housing.

The annual report of the Development Directorate shows that their vast housing scheme for the city of Bombay has made good progress. Out of 50,000 one-room tenements to be provided, 2720 in 60 new buildings were let or ready to let on March 31st, 1923. For the relief of congestion several square miles of land are to be added to the city by the reclamation works now advancing rapidly in Back Bay. On account of the deplorable epidemics of malaria which have in the past accompanied reclamation works in Bombay itself and elsewhere, the operations of the Directorate in Back Bay naturally give rise to a good deal of anxiety. To allay the apprehension felt and to forestall danger, the Government has appointed an advisory sanitary committee to work in close touch with the officer selected by the Directorate to organise anti-mosquito and other sanitary measures over the whole of the areas to be reclaimed. That the situation is well in hand may be judged from the report recently presented by Lieut.-Colonel S. R. Christophers, I.M.S., Director under the Government of India of the Central Research Institute at Kasauli, who has been permitted by the Government to advise as to the precautions to be taken. In the concluding paragraph of his report Colonel Christophers says: "I think the position of the committee in regard to the control of malaria on the reclamation area is sound. Under present arrangements it is practically impossible that any serious increase in anopheles could arise without this being at once fully appreciated, and should such increase occur I see no reason to doubt that effective measures could be at once found to deal with it."

Small-pox.

Except for the recent occurrence of a few cases of small-pox, serious infectious disease is at present practically absent in the city of Bombay. The death-rate remains low, and should no untoward event occur in the next six weeks, the rates for the year, despite the cholera epidemic, should, according to Bombay standards, be satisfactory.

Bombay.

The Services.

REWARD FOR GALLANTRY.

Surg.-Comdr. William Perceval Hingston, R.N., has been appointed a Member of the Military Division of the Third Class, or Companion of the Most Honourable Order of the Bath, in recognition of the gallant conduct he displayed and the valuable services he rendered on the occasion in September last of the destruction by earthquake and fire of the R.N. Sick Quarters, Yokohama, when by his gallantry and presence of mind he was the direct means of saving the lives of the large number of refugees who sought escape from the fire in the hospital grounds.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Capt. Sir R. Bankart, medical officer of the Royal Yacht *Victoria and Albert*, to be Surg.-Rear Admiral.

Surg. Comdr. E. D. Rutherford is placed on Retd. List at own request.

Surg.-Lt. Comdrs. to be Surg. Comdrs.: A. B. Clark, G. B. Cockrem, M. R. Thatcher, E. St. G. S. Goodwin, G. D. Mackintosh.

Surg. Lt. (Emergency List) A. G. Bee is reinstated on Active List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. A. L. Scott and Maj. C. Cassidy retire on ret. pay.

Capt. P. G. Tuohy retires, receiving a gratuity.

Temp. Capts. relinquishing their commns. and retaining the rank of Capt.: F. M. Davies, M. Ferguson, and R. R. H. Wonnacott.

Capt. B. C. O. Sheridan relinquishes the actg. rank of Maj.

Temp. Capt. L. H. Walsh relinquishes his commn. and retains the rank of Capt.

MILITIA.

Capt. J. B. Irving relinquishes his commn. and retains the rank of Capt.

ROYAL AIR FORCE.

Flight Lt. W. J. G. Walker is granted a permanent commission.

R. W. White is granted a short service commission as a Flying Officer.

Correspondence.

"Audi alteram partem."

RESPONSIBILITY OF THE CRIMINAL LUNATIC.

To the Editor of THE LANCET.

SIR,—The Report of the Committee upon Insanity and Crime cannot be said very appreciably to have clarified the difficulties it was constituted to consider. Without doubt several of its members were at least sympathetically inclined to accept the medical case, but unhappily this case was not presented by a united voice. The result will probably be that a widely diffused but mild satisfaction will be felt by the mass of the two professions concerned; while the general public, so far as in cold blood and uninfluenced by any immediately outstanding case in point it is at all concerned, will be indifferent. The medico-psychological world will welcome a further diminution of the field of criminal responsibility, and the legal world will, perhaps, be somewhat, though not seriously, apprehensive that "the observance of the law" may further "be gravely hindered" by the inclusion of such nebulous mental material as impulses "which the prisoner was by mental disease in substance deprived of any power to resist."

In the Middle Ages insanity afforded no legal defence. In 1670 the great lawyer Hale wrote that partial insanity is no excuse, and it is really only within the last hundred years that, with the growth of humanitarianism in the administration of the law and of psychology in the practice of psychiatry, the problem of defining responsibility has become prominent. The solution of the problem certainly becomes no easier as the years move on. On the one hand, the importance of the doctrine of inescapable personal responsibility becomes clearer as the scientific investigation of ethics, law, and sociology becomes more profound. Without it even our language would have to be remodelled. On the other hand, the analytic investigation of the evolution of the mind, whether in the race or in the individual, shows more and more that growth depends upon factors over which the individual can be said to have but slight, if any, control.

It is with those considerations before him that the physician so often appears to the lawyer to be unduly hesitant in the question of responsibility. Few will be found to disagree with the committee "that a person may be of unsound mind and yet be criminally responsible," but the difficulty of the physician at once arises when he attempts to disentangle the unsoundness and the responsibility. In practice he finds it impossible, and, perhaps inclining too much to the merciful and too little to the judicial aspect of the case, passes to the position that it is better to excuse any accused person who presents any symptoms of insanity than to punish one whose act has, in fact, been the result of morbid mental processes, although the connexion between the act and the processes is not obvious, or rational, or even likely.

Much of our difficulty and controversy really depends on the unscientific treatment of most of our criminals and the irrevocable character of punishment. To hang a man as an act of retribution or as a warning to others for an act for which he was not responsible is clearly contrary to the ethical sense of our civilisation. To condemn him under similar circumstances to a term of imprisonment, though not so revolting, is calculated to burden the general conscience. It is likely that in the future the notion of mitigated responsibility will become more prevalent. The bald problem of whether a criminal is responsible or not will be exchanged for the problem as to how far heredity, education, and environment have qualified his responsibility, and sentences will vary with the findings of an examination of these factors. Punishments in their turn are likely to be compounded less of retributive and preventive elements and more of the corrective or ameliorative element. Changes of this character will, of course, take time to become widely operative, but in the meanwhile the medical profession may think with pleasure that such changes of a scientific character are slowly but surely making their appearance, and are due almost wholly to the work of its members.—I am, Sir, yours faithfully,

Harley-street, Dec. 2nd, 1923. E. D. MACNAMARA.

GENERAL ELECTION: THE ENFIELD SEAT.

To the Editor of THE LANCET.

SIR,—Local considerations and conditions led me to the decision *not* to contest the Enfield division at this election, thereby making a three-cornered contest; but I have been asked, and have agreed, to be the prospective Liberal candidate for the next election.

I am, Sir, yours faithfully,
R. LESLIE RIDGE.

Enfield, Middlesex, Nov. 29th, 1923.

NASAL SINUSITIS IN PHTHISIS.

To the Editor of THE LANCET.

SIR,—I do not think the citation of Skillern by Dr. A. L. Yates (THE LANCET, Dec. 1st, p. 1211) tells for his contention that frontal and ethmoidal sinusitis do not complicate the diagnosis of chest affections; for Skillern's conclusion was that ordinary maxillary sinusitis was not over-common in tuberculosis. Moure's conception of nasal defect in phthisis I mentioned deprecatingly in my letter as well as in my book; but also with the implication that it was far nearer the truth than the proposition that these nasal changes are the result of tuberculosis, which is what Dr. Yates had advanced. As to packing the nose of ozænatous consumptives with cyanide gauze, that was merely on a single occasion, "for an hour or so," to remove crusts, deodorise, and abate the nuisance to fellow sanatorium patients. The above indicate differences real enough, but such as will diminish. If Dr. Yates publishes his protocol, he will add to the scanty exact record, and thereby to our knowledge.

I am, Sir, yours faithfully,
Dec. 2nd, 1923. W. C. RIVERS.

MATERNITY NURSING HOMES.

To the Editor of THE LANCET.

SIR,—In connexion with the efforts of the medical profession to lower both the present existing high mortality and illness from puerperal sepsis, may I call attention to one of the types of maternity home which are springing up like mushrooms throughout the country, especially in the poorer areas of the large cities. The public, in response to the teaching of the profession, is beginning to appreciate the advantages that accrue when a confinement is properly conducted in a well-equipped institution or nursing home. With the demand the supply has naturally increased, but it behoves the profession to watch carefully that the good is not undone by new evils arising in its midst. I refer to the small dirty house, owned and presided over by a woman frequently covered by the diploma of the C.M.B., into which patients are taken for the purpose of their confinement. Houses of this type are popular with the masses, and apparently are a financial success to the owner. No medical man enters unless something goes wrong, and then it is often too late. The midwife, however, is "covered" because she has called in medical help.

It is no uncommon thing in the out-patient department of a hospital to trace many cases of pelvic inflammation to the "care" bestowed upon the patients in houses of this type. It is one thing to train a woman for the diploma of the Central Midwives Board. It is another to train her, without long and detailed hospital experience, to equip and manage a maternity home. As often as not it is the uneducated type of the C.M.B. diplomée who appears to fall into the error of attempting such a proposition.

The result is that the "maternity home" of this type is nothing more than an ordinary dirty house in which one or more women wear uniforms, and where repeated vaginal examinations are made at considerable risk to the unfortunate patients, who pay for the mythical security which the blessed word "home" suggests. Instances have been brought to my knowledge of places of this description where no temperatures are taken, catheters are not available, and even where septic patients—e.g., inoperable carcinoma—are being attended by the same woman.

How can this state of things be altered? It is a difficult matter for obvious reasons for an individual practitioner to act, especially if a "home" of this type happens to be in his immediate district. Cannot a solution be found in the inspection and possible registration of all maternity nursing homes and institutions where pregnant women are taken for the purpose of their confinement? Periodical inspection would be no hardship, and, from information that I have obtained, would be welcomed by homes of repute. At the same time it would put an end to that other type of home run purely as a financial concern at the expense of the health of the mothers of the nation.

I am, Sir, yours faithfully,

Beckwith Whitehouse,
Honorary Obstetric Officer, General Hospital,
Birmingham: Examiner to the Central
Midwives Board, &c.

Nov. 27th, 1923.

A CORRECTION.

To the Editor of The Lancet.

Sir,—In a lecture which I delivered this week as Gresham Professor of Physic before the National Union of Teachers upon Fatigue and Sleep, I am reported to have said that I had discovered a vaccine which I was using to combat fatigue. This, of course, is wholly inaccurate and has caused me much annoyance. I read my lecture from a carefully prepared manuscript. I referred to the work of Drs. Myers, Stanley Kent, and Vernon, as also to that of Mosso, Crile, Cannon, Miss May Smith, and others. I pointed out that fatigue was probably caused by the accumulation of intra- and extra-neuronic toxins; but that the body had power to form "antibodies," or antitoxins, to combat these; and if ever their nature could be ascertained, a vaccine might not impossibly be prepared to antagonise the feelings associated with fatigue. No press notices were submitted to me.—I am, Sir, yours faithfully,

Robert Armstrong-Jones.

Bramham Gardens, S.W., Dec. 1st, 1923.

Donations and Bequests.—By the will of the late Sir Albert John Hobson, of Sheffield, the testator left such part of his promised gift of £5000 to Sheffield University as has not been paid, together with any duties payable thereon, to the said University.—The Chelsea Hospital for Women and the Bolingbroke Hospital each receive £100 under the will of the late Mr. A. F. Hall of Battersea.—Mr. S. Bunning of Borrowshaw, who started life as a railway porter at Derby and afterwards was manager of a brewery at Beeston, Nottingham, walked into Derby Infirmary and handed the secretary £1000 in notes to endow a bed in memory of his late wife. He then visited the Railways Servants' Orphanage and left notes for £670.—Mr. Samuel Maurice Marcus, the triple millionaire of Redhill, Surrey, left £10,000 to the Reigate and Redhill Hospital, £5000 to Guy's Hospital, £1000 each to the London Hospital, Dr. Barnardo's Homes, Royal Institution, London, and Jewish Board of Guardians.—Dr. John William Pare, M.D., L.D.S., of Golders Green and Cavendish-square, left estate of the gross value of £23,472. Failing issue to both his daughters he left £1000 to the Royal Society of Medicine, upon trust for investment, and to apply the income in support of any investigation for the advancing of the art of healing, this fund being named the Margaret Edmondson Pare and Arthur Henry Pare Trust; £500 to the University Court of the University of Edinburgh, for the medical faculty of that University, provided that his name be permanently associated with this bequest; and £500 to University College Hospital, London, for the dental department, with a similar provision as to the association of his name.

Medical News.

University of Oxford.—The following candidates satisfied the examiners in the recent examination for the Diploma in Public Health:—

Part I.—J. G Johnstone, A. A. E. Newth, H. Shannon, and A. C. Tibbits.

Part II.—W. H. Butcher, H. W. Hardy, A. A. E. Newth, H. Shannon, A. C. Tibbits.

Society of Apothecaries of London.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—J. B. Couche, Toronto; J. E. Elam, Cambridge and St. Bart.'s Hosp.; S. Halperin, St. Thomas's Hosp.; J. B. Sweet, Glasgow; and S. Thompson, Leeds.

Medicine.—J. E. Elam, Cambridge and St. Bart.'s Hosp.; E. J. R. MacMahon, St. Thomas's Hosp.; W. McLaren, Durham; D. Parsons, Charing Cross Hosp.; and L. Statnigrosch, Middlesex Hosp.

Forensic Medicine.—J. E. Elam, Cambridge and St. Bart.'s Hosp.; and D. Parsons, Charing Cross Hosp.

Midwifery.—P. V. Casling and E. J. Creais, St. Mary's Hosp.; J. E. Elam, Cambridge and St. Bart.'s Hosp.; E. J. R. MacMahon, St. Thomas's Hosp.; W. McLaren, Durham; I. Morgan, St. Mary's Hosp.; D. Parsons, Charing Cross Hosp.; F. R. Ratnagar, Guy's Hosp.; M. A. E. Somers, Bristol; J. B. Sweet, Glasgow; and E. W. Warne, Guy's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: J. E. Elam, S. Halperin, D. Parsons, M. A. E. Somers, and S. Thompson.

University of London: *London Inter-Collegiate Scholarships Board.*—Eleven medical entrance scholarships and exhibitions of an aggregate total value of £1134, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women are being offered. The examinations will commence on April 28th and June 24th, 1924. Full particulars and entry forms may be obtained from the secretary of the board, Mr. S. C. Ranner, M.A., Medical School, King's College Hospital, Denmark Hill, London, S.E. 5.

Small-pox in England and Wales.—Cases of small-pox occurring during the week ended Nov. 24th were reported in the following sanitary areas: Derbyshire 9 (Chesterfield 1, Heanor 6, Blackwell R.D. 1, Shardlow R.D. 1); Gloucestershire 11 (East Dean R.D.); Notts 16 (Hucknall 12, Kirkby-in-Ashfield 3, Basford R.D. 1); Yorks W.R. 1 (Bentley-with-Arksey); Port of Cardiff 1.

Tuberculosis Society.—A meeting will be held on Dec. 14th, at 8 p.m., at the Margaret-street Hospital, Margaret-street, London, W., when a paper on Operative Fixation for Caries of the Spine will be read by Mr. R. Milne.

West Kent Medico-Chirurgical Society.—A meeting of this Society will be held at the Miller General Hospital, Greenwich, on Friday, Dec. 14th, at 8.45 p.m., when the Purvis Oration will be delivered by Sir Thomas Horder on Carcinomatosis.

The Inheritance of Mental Defects.—An illustrated lecture on this subject will be held on Dec. 13th, at 8 p.m., at Essex Hall, Strand, W.C., by Prof. E. W. MacBride, F.R.S., under the auspices of the Society for Constructive Birth Control and Racial Progress. Dr. Marie Stopes will preside.

Irish Medical Schools' and Graduates' Association.—The autumn dinner was held at Pagani's Restaurant, London, on Nov. 27th. Sir William Taylor presided, the guest of the evening being Surgeon Vice-Admiral Joseph Chambers. Over a hundred members of the Association and friends were present and an enjoyable evening was spent. The next dinner will be held on St. Patrick's Day, March 17th, 1924.

Society of Medical Officers of Health: Maternity and Child Welfare Group.—Dr. Harold Scurfield will deliver his presidential address, entitled Lines of Advance in Maternity and Child Welfare Work, at 5 p.m., on Dec. 14th, at 1, Upper Montague-street, Russell-square, London. W.C. Medical practitioners interested in maternity and child welfare work are invited to be present.

Royal Institution.—At a general meeting held on Dec. 3rd, Sir James Crichton-Browne being in the chair, it was announced that Mr. Joseph Barcroft, F.R.S., has been elected Fullerian Professor of Physiology in succession to Sir Arthur Keith. Special thanks were returned to Dr. Rushton Parker for his donation of £100 towards the improvement of the library.

Sir Humphry Rolleston has accepted the chairmanship of the Propaganda Committee of the National Association for the Prevention of Tuberculosis.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting will be held at the Elizabeth Garrett Anderson Hospital on Dec. 11th at 8.30 P.M., when Dr. Agnes Savill will read a paper on the Sun Cure at Leysin.

AT the close of the Brussels Cancer Conference on Nov. 23rd, it was decided to organise an international association to fight cancer, with Dr. F. M. Bergonié, professor of biological physics at Bordeaux University, as chairman of the provisional committee.

THE King has sanctioned the following appointments to the Order of the Hospital of St. John of Jerusalem in England: Lieut.-Colonel Gerald Hamilton Goddard, R.A.M.C., Dr. Hugh Falconer Oldham, and Lieut.-Colonel William Booth Skinner, S.A.M.C., to be Knights of Grace.

GRAPHIC METHODS IN HEART DISEASE. — Two lectures, illustrated by lantern slides, will be delivered on this subject by Dr. John Parkinson on Dec. 17th and 19th, at 4.30 p.m., in the Anatomical Theatre of the London Hospital College. The lectures are free and are intended for senior students of the hospital and post-graduates.

MEMORIAL TO THE LATE PROF. DELÉPINE.—A bust in bronze, by Mr. John Millard, of the late Prof. S. Delépine, of the University of Manchester, will be unveiled by Sir George Newman at the Public Health Laboratory, Manchester, on Dec. 12th. The bust will be placed in a marble niche on the staircase of the laboratory.

CANCER HOSPITAL.—A course of post-graduate lectures will be delivered at the Cancer Hospital (Free), London, S.W., weekly during the months of January, February, and March, 1924, dealing with various aspects of cancer. Any registered medical practitioner or student who wishes may attend, without tickets. The syllabus of the lectures will be published later.

ROYAL NORTHERN HOSPITAL. — On Nov. 27th H.R.H. the Prince of Wales opened the new casualty department at the Royal Northern Hospital, which is the borough of Islington's war memorial. The new building, with equipment, cost nearly £16,000, and of this sum £12,000 has been already subscribed through the efforts of the Islington War Memorial Committee, the corporation, and many individual helpers.

INDUSTRIAL HYGIENE.—With a view to contributing towards the study of occupational diseases and industrial health the International Labour Office undertook some time ago to draw up a list of unhealthy occupations. This entailed the examination of a large amount of statistical, chemical, and medical information, the publication of which has been approved, as it is considered likely to be of great value to medical men and to all persons interested in labour questions. The intention is to publish, under the title Occupation and Health, a complete encyclopædia of industrial health and pathology, which will give the reader the most recent and carefully checked information at the disposal of an international organisation. The articles dealing with industrial poisons, infectious diseases, and the general account of matters relating to poisoning and infection, to personal health, sanitation, and medical treatment will be published first. There will follow short monographs on the industries likely to injure the life or health of workers. The final series will discuss general questions of industrial physio-pathology. A number of experts from all countries have already promised to collaborate in this work, and it seems likely that the publication of their collated experience will prove of considerable importance.

NATIONAL TEMPERANCE LEAGUE. — Sir Thomas Barlow, first medical President of the League, was welcomed by a representative body of members and associated temperance workers in the Council Chamber of Caxton Hall, Westminster, on Nov. 30th, when he delivered an address dealing with Prof. E. H. Starling's recent book, "The Action of Alcohol on Man." He pointed out that it departed from impartial presentation by the general implications made in favour of the ordinary use of alcohol on grounds other than scientific. Alluding to the loss the League had sustained by the death of its oldest vice-president, Dr. Clifford, the President referred to the fact that some 35 years ago he had examined Dr. Clifford for life insurance, and stated that Dr. Clifford's policies had more than doubled in value before maturity. Brief speeches were made by the Bishop of Croydon, Lord Clwyd, Mr. W. McAdam Eccles, Mr. Arthur Evans, and Dr. Basil Price, testifying to the regard felt for Sir Thomas Barlow, and congratulating the League on its new President.

THE HARBEN LECTURES, 1923.—These lectures will be delivered in the theatre of the Royal Institute of Public Health (37, Russell-square, London, W.C.1) by Prof. D. Levaditi, M.D., Institut Pasteur, Paris, on Tuesday, Wednesday, and Thursday, Dec. 11th–13th, at 5 P.M. The subjects of the three lectures are: (1) Neurotrophic Virus (Encephalitis Herpes); (2) Neuro-vaccine; (3) New Discoveries in the Treatment and Prophylaxis of Syphilis. The lectures will be delivered in English, and all interested are invited to attend.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 10th.

WAR: at 5 P.M.
Paper:
Surg.-Commander D. H. C. Given, R.N.: An Inquiry into the Causes Underlying the Mosquito Nuisance in the Alvestoke (Hants) District, and the Initiation of Measures of Control.
A discussion will follow.

Tuesday, Dec. 11th.

ANNUAL DINNER of the Society, Hotel Victoria, London, at 7.30 P.M.

THERAPEUTICS AND PHARMACOLOGY: at 4.30 P.M.
Papers:
Prof. F. R. Fraser: Some Aspects of Cardiac Dyspnœa.
Dr. Claude Wilson: The use of Opium in Cardiac Dyspnœa.

Wednesday, Dec. 12th.

PSYCHIATRY: at 8.30 P.M.
Paper:
Dr. W. L. Templeton and Dr. Henry J. MacBride: The Malaria Treatment of G.P.I.

Thursday, Dec. 13th.

NEUROLOGY: at 8.30 P.M.
Paper:
Dr. F. L. Golla: Electromyographic Studies of Voluntary Movements.

Friday, Dec. 14th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Dr. Neil Hobhouse: Progressive Neural Muscular Atrophy.
Dr. Bernard Myers: Adiposis Dolorosa.
Dr. C. F. T. East: Congenital Morbus Cordis.
Other cases will be shown.

OPHTHALMOLOGY: at 5 P.M., at the Central London Ophthalmic Hospital, Judd-street, W.C.
Clinical meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.

MONDAY, Dec. 10th.—8–30 P.M., Discussion on Intracranial Hæmorrhage in New-born Children, its Pathology, Effects, Treatment, and Results. To be introduced by Mr. Eardley Holland and Dr. H. Charles Cameron, and followed by Dr. Farquhar Buzzard, Mr. Laming Evans, Dr. Sidney Owen, Mr. H. A. T. Fairbank, Dr. J. B. Mennell, Dr. L. G. Phillips, and Dr. E. Bellis Clayton.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Dec 13th.—At 8.15 P.M. a Laboratory Meeting will be held at the London School of Tropical Medicine, Endsleigh-gardens, Euston-road. The following, amongst others, will give demonstrations: Major R. G. Archibald: A New Protozoön in Man. Surg. Rear-Admiral Sir Percy Bassett-Smith: Scurvy in Guinea-pigs. Dr. W. Broughton-Alcock: Exudate from a case of Spirochætal Catarrh of the Antrum. Major T. L. Bomford, I.M.S.: Trichonocardiasis of Hair. Dr. R. St. John Brooks: Post-mortem Appearances of Meliodiosis in Guinea-pigs (slides of the Causal Organism *B. whitmori*). Dr. J. T. Duncan: The Effect of "Bayer 205" in Kala-azar. Colonel S. P. James. M.D.: The Parasites of Inoculated Malaria in England (in General Paralytic Patients). Mr. B. Jobling: Life-History of Ornithodorus Monbata. Colonel Clayton Lane, M.D.: Direct Centrifugal Flotation for the Accurate Concentration of Ankylostome Eggs. Dr. P. H. Manson-Bahr: Pel-Ebstein Disease. Dr. P. H. Manson-Bahr: Living Embryos of *Loa loa* Stained by Sharpe's Method in vivo. Dr. H. B. Newham: A Series of Malaria Slides from British Honduras. Dr. Graham Willmore: Rare Streptothrical Infection of Liver and Kidney. Dr. H. M. Woodcock: Rickettsia Bodies from Normal Lice.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE, 1, Wimpole-street, W.

Monday, Dec. 10th, to Saturday, Dec. 15th.—Hampstead General Hospital, Haverstock-hill: Special Intensive Course (second week).—Royal Westminster Ophthalmic Hospital, Charing Cross: Clinical Instruction every afternoon from 2 p.m.; Tuesday and Thursday at 10 a.m.—St. John's Hospital (London School of Dermatology): Clinical Demonstrations twice daily at 2 and 6 p.m.; Saturday, 2 p.m. only.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Dec. 10th.—10 a.m., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 p.m., Mr. Addison: Surgical Wards.

Tuesday.—10 a.m., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Dr. Burrell: Chest Cases. 2 p.m., Mr. Banks-Davis: Nose, Throat and Ear Dept.

Wednesday.—10 a.m., Dr. Saunders: Medical Diseases of Children. 12.15 p.m., Dr. Burnford: Medical Pathology. 2.30 p.m., Mr. Donald Armour: Surgical Wards.

Thursday.—10 a.m., Dr. Grainger Stewart: Neurological Dept. 11 a.m., Mr. Simson: Gynæcological Demonstration. 2 p.m., Mr. MacDonald: Genito-Urinary Dept.

Friday.—10 a.m., Mr. Dudley Buxton: Dental Dept. 11 a.m., Dr. McDougal: Electrical Dept. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Medical Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.

Tuesday, Dec. 11th.—5 p.m., Dr. A. Whitfield: Fungus Infections.

Thursday.—5 p.m., Dr. W. Griffith: Eczema.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.

Thursday, Dec. 13th.—5 p.m., Mr. L. G. Phillips: Tumours Complicating Childbirth.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Dec. 12th.—4 p.m., Mr. H. T. Herring: The Disposal of the Dead, with Special Reference to Cremation.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Wednesday, Dec. 12th.—6 p.m., Seventh Lecture, Dr. W. A. Potts: Crime and Delinquency.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.

Tuesday, Dec. 11th.—(At the Royal Infirmary.) 3.30 p.m., Mr. Kerr: Nasal Polypi.

Friday.—(At the Royal Hospital.) 3.30 p.m., Mr. Garrick Wilson: Injuries in the Neighbourhood of the Elbow-Joint.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Dec. 11th.—4.15 p.m., Dr. A. H. Holmes: Demonstration of Cases.

Friday.—4.15 p.m., Mr. S. R. Wilson: Recent Improvements in Anæsthesia.

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES.

(At 3.30 p.m.)

Monday, Dec. 10th.—(At the Hospital for Women.) Dr. Leith Murray: Some Points in Gynæcological Diagnosis.

Tuesday.—(At the Maternity Hospital.) Miss Ivens: Indications for Cæsarean Section.

Wednesday.—(At the St. Paul's Eye Hospital.) Mr. Thos. Stevenson: Clinical Cases.

Thursday.—(At the St. George's Skin Hospital.) Dr. F. H. Barendt: Skin Cases.

Friday.—(At the Eye and Ear Infirmary.) Mr. Lethart: The Modern Treatment of Chronic Middle-ear Disease.

Appointments.

Alexander, J., M.B., B.Ch. Belf., has been appointed Resident Surgeon to the Londonderry Infirmary.

Galbraith, A. L., M.B., Ch.B., House Surgeon, North Lonsdale Hospital.

Griffiths, G. B., M.R.C.S., L.R.C.P. Lond., Medical Director of Prisons, to be one of the Commissioners under the Prison Act, 1877.

Lumsden, H. F., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Lyme Regis District of the County of Dorset.

Phillips, J. W. G., F.R.C.S. Eng., L.R.C.P. Lond., Chief Resident Medical Officer, Lake Hospital and Poor-law Institution, Ashton-under-Lyne.

Taylor, R. J. O., M.B., Ch.B., D.P.H. Edin., Resident Medical Officer, Wandle Valley Joint Hospital.

King Edward VII. Hospital, Cardiff: Jones, A. M., M.D. Edin., F.R.C.S. Edin., Hon. Assistant Surgeon to the Ear, Nose. and Throat Department; and McFarlane, J., L.R.C.P. & S., L.D.S. Eng., and Spiridion, C., L.D.S. Eng., Hon, Dental Surgeons.

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, 1, Clapham-road, S.W.—Asst. P. 50 guineas.

Birmingham Orthopædic Centre (Ministry of Pensions).—Two Jun. M.O.'s. Each £350.

Blackburn and East Lancashire Royal Infirmary.—Third H.S. £250.

Bristol General Hospital.—Hon. Clin. Assts. Sen. Res. M.O. £250.

Burton, Devonshire Hospital, Derbyshire.—Asst. H.P. £150.

Cancer Hospital, Fulham-road, S.W.—H.S. £100.

Colonial Service, British Guiana.—Three Asst. Govt. M.O.'s. £500.

Derbyshire Royal Infirmary, Derby.—Two H.S.'s. Each £200.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £175.

East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Cas. O.'s. Each £120.

General Lying-in Hospital, York-road, Lambeth, S.E.—Res. M.O. £100. M.O. for Infant Welfare Centre.

Hellingly, East Sussex County Mental Hospital.—Visiting Ophth. S.

Johannesburg, South African Institute for Medical Research.—Asst. Pathologist. £800.

London Homœopathic Hospital, Great Ormond-street, W.C.—Asst. P. for Dis. of Women.

London Lock Hospital, 91, *Dean-street, W.*—Clin. Assistantship.

London Lock Hospital, 283, *Harrow-road, W.*—Second H.S. £150.

Manchester Royal Infirmary.—Hon. Ophth. Surg. Sen. Med. Reg. £150.

Middlesex Hospital and Medical School, W.—Eight Registrarships. Each £300.

National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Asst. P. Also Res. M.O. £200.

Northampton General Hospital.—Hon. Surg. to Ear, Nose, and Throat Department.

Royal Army Medical Corps.—Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P.

St. Bartholomew's Hospital, Venereal Dept.—Pathologist. £300.

St. Peter's Hospital, Henrietta-street, Covent Garden, W.C.—Clin. Assts.

Salford Royal Hospital, Manchester.—Res. Surg. O. £200.

University College Hospital, Gower-street, W.C.—Tuberculosis O. £300. Radiographer.

Walthamstow, Wanstead, and Leyton Children's and General Hospital.—Res. H.S. £150.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., and Res. Cas. O. Each £100.

Wigan Infirmary.—Third H.S. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments at Beccles (Suffolk) and Lynton (Devon).

Births, Marriages, and Deaths.

BIRTHS.

Healy.—On Nov. 26th, at West View, Paignton, the wife of Dr. Healy, of a son.

Lankester.—On Nov. 28th, at Green Trees, Smith-lane, Bradford, the wife of Ralph Lankester, M.D., of a son.

Wells-Cole.—On Nov. 30th, at Minster-yard, Lincoln, the wife of Dr. Wells-Cole, of a son.

MARRIAGES.

Archer—Ashweek.—On Nov. 29th, 1923, at the Garrison Church, Shoeburyness, by the Rev. L. Alford, C.F., George Eric Archer, M.B., Ch.B., second son of the late Rev. George Archer and Mrs. Archer, of Huddersfield, to Frances Kate, daughter of Captain and Mrs. W. F. Ashweek, of Shoeburyness.

Fyffe—Leetham.—On Nov. 27th, at St. James's Church, Piccadilly, Major Eric Leigh Fyffe, M.B., B.S. Lond., R.A.M.C., to Florence Evelyn (Eve), second daughter of Mr. and Mrs. Alfred Leetham, of Shelley, Holgate, York.

DEATHS.

Elam.—On Nov. 30th, at New Barnet, Herts, William Henry Elam, F.R.C.S.

Latchford.—On Nov. 29th, at Normanhurst, Falmouth, Lieut.-Colonel John Latchford, R.A.M.C. (retd.), aged 78.

Orr.—On Nov. 21st, at Brand House, Ludlow, Shropshire, William John Orr, M.B.Glasg., F.R.C.S. Edin., aged 49.

Pollard.—On Dec. 1st, at Devonshire-place, Birkenhead, George Wilfred Pollard, M.D., C.M.

Thompson.—On Nov. 28th, at Bombay, Francis Barrallier Thompson, M.R.C.S., L.R.C.P., late Chief Medical Officer, Cyprus.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

WORKS OF REFERENCE.

THE MEDICAL DIRECTORY.

The Medical Directory for 1924 reaches us with even more than its usual promptitude; we received it before the month of November was out. The eightieth annual issue of this classic contains the well-known features with the little additions of arrangement and convenience which experience continues to suggest. The numerical summary of the medical profession shows a total of 47,608 names, being an increase of 1297 on the previous year—unprecedented during the last decade. This increase is divided among all sections of the Directory, being especially noticeable in Scotland and abroad; the number of names, however, in the Services section is slightly diminished. The preliminary chapter on British spas and climatic health resorts has been expanded to occupy 24 pages, with the addition of an index. The only new feature is the inclusion of a Directory of the Principal Medical Trades, occupying four pages and including headings such as Abdominal belts, trusses, elastic stockings, and other surgical appliances; Chemists and druggists (manufacturing); Surgical instruments, hospital furniture, water beds, bedsteads, &c. In this section some of the names are indicated in grander type than others. The Late List of new names and changes of address has been transposed to the front of the Directory. All these things make for a useful work of reference which will, indeed, be almost ideal for its purpose when its editors see fit to reinstate the asterisk which for so many years differentiated between information known to be up-to-date and that which has not been subjected to recent revision. The Directory is published by Messrs. J. and A. Churchill and costs 36*s.* net.

THE MEDICAL YEAR BOOK.

We have received from Messrs. William Heinemann (Medical Books), Ltd., a copy of a new work of reference for 1924 intended to serve as a guide to the current activities of the medical profession in the United Kingdom. It is edited by Mr. Charles R. Hewitt, who was associated intimately for 38 years with the literary needs of medical men, first as assistant librarian of the Royal College of Surgeons, and later as librarian of the Royal Society of Medicine. His recent experience has been that of librarian and registrar at the League of Red Cross Societies in Geneva. The book opens with a calendar of forthcoming meetings, beginning with Oct. 1st, 1923, although the volume only reached us on Dec. 1st. There follow in orderly sequence details of the Ministry of Health, the General Medical Council, the Examining Boards, the University of London and its constituent schools, and a list of London specialists, followed by a similar information for other parts of England and for Scotland. In the lists of staffs of hospitals no distinction is made between those on the active and the consulting staff, and there are several ways in which this might cause inconvenience. Information is given of the various services including that of prisons. There is a register of medical societies—Ireland is included here but not elsewhere in the volume—and of nursing homes and nursing associations. Wills of medical men and charitable bequests are noted, and a complete list is given of medical works and pamphlets published in Great Britain during the year preceding publication. The names of current medical periodicals are set out, with prices and address of offices, and libraries where they can be consulted are indicated. The inclusion of days and hours of attendance at the chief London hospitals is another time-saving device—in this case it is the patient's time that can be saved. An adequate index renders cross-reference easy. We commend the general arrangement of the academic section of the book without hesitation, since it follows the familiar model of the annual Students' Number of The Lancet. Mr. Hewitt modestly admits omissions on the ground of the complexity of the work and it would be churlish to complain of these. But we should like to see included those elusive names of the staff of the medical department of the London County Council and those of provincial medical officers of health, although no doubt some of them appear under the heading of hygiene specialists. We miss the mental deficiency hospitals of the M.A.B., and any mention of such useful matters as medical defence and hospital savings associations. It seems a little questionable whether the panel system does actually now "do away with the need for a capital sum at the outset" of a medical career. Every name appearing in the medical records of the book is that of a legally qualified and registered practitioner, but Mr. Hewitt has included in a trade directory (which is numbered and indexed as part of the volume) a list of osteopaths and bone-setters which will prove more useful to the pre-patient and perhaps to the discontented ex-patient than to the medical man himself, who might have been grateful for a list of experienced manipulators willing to act under his personal guidance. The Year Book is concise and pleasant to handle, and is a welcome addition to our works of reference. The price is 12*s.* 6*d.*

THE MEDICAL WHO'S WHO.

To the Editor of The Lancet.

Sir,—I should be grateful if you would permit me to remind practitioners who have not returned their forms to do so immediately as the seventh edition of the Medical Who's Who (1924) is being passed for press. May I repeat that cuttings from, or mere references to, other publications cannot be accepted (unless re-written on the special form provided) without infringement of copyright. In some instances forms have been received with either no name or merely initials and with no address; such, obviously, cannot be printed. If forms have been lost or mislaid another can be sent on receipt of stamp.

I am, Sir, yours faithfully,
The Editor.

1, Chichester House, Chancery-lane, London, W.C. 2.

A BOOK FOR CHILDREN OF ALL AGES.

We are indebted to Mr. Kenneth Walker and Mr. Geoffrey M. Boumphrey for discovering, reproducing, and interpreting certain pictures, "ill-drawn and perished with age," which are alleged by the very oldest tortoise at the Zoo to represent hitherto unknown events connected with Noah and his Ark. "The Log of the Ark" (London: Constable and Co. 1923. 7*s.* 6*d.*) includes an account of the world before the flood, of the coming of the rain, and of the arrival of the birds and animals. The first day on board, the difficulties about baths and breakfast, and the daily life in fine and in dirty weather are described in happy and fantastic vein. But under all the disconnected episodes, described in a whimsical style reminiscent now of Carroll, now of Kipling, runs a connected argument which is both original and dramatic. "Many years ago when the world was new and clean" luscious fruit formed the staple diet of all living creatures. But after the flood the world which gradually reappears to the animals peering anxiously from the Ark is stark and barren of vegetation. During the weary hours on board a subtle and malignant influence, embodied in the "scub," has been causing unrest by anticipations of the commissariat difficulties that will arise in the new world, and by hints at horrible ways in which these might be solved. New desires, fears, and suspicions pervade the Ark, and at the last it is a worried and uneasy Noah who, with the help of the competent Japhet and Ham, organises the disembarkation. Children too young to be stirred by this sinister change of atmosphere will be entranced by the designs on the paper wrapper and elsewhere, and by the accounts of the adventures of the Luminous Puffkins, the Clidders, and not least the Wumpetty Dumps. It is, indeed, a book for children of all ages.

SCOTTISH RESURRECTIONISTS IN 1825.

A correspondent writes: The paragraph on Body-Snatching and Murder, under the general heading Medicine and the Public in the Centenary Number of The Lancet (p. 699), calls particular attention to the Burke and Hare episode in the life of the Edinburgh anatomy schools. Body-snatching in Scotland was no new thing when in October, 1826, 33 human bodies in casks, labelled grimly "Bitter Salts," were discovered on the quays at Liverpool. They were destined for the Edinburgh anatomists, but it would be unfair to infer that those distinguished men drew their supplies from England alone. Burke and Hare conducted their operations in Edinburgh itself, where, till they were apprehended in 1828, they supplied Knox's anatomy school with a succession of corpses. Scotland stood in great fear of the resurrection men, and this is manifest in the stern old Greyfriars Churchyard, Edinburgh, where the "mortsafes" or barred tombs add to the general gloom of the scene, or in the burial ground at Crail, where there is a house "for securing the dead." Scotland, indeed, would seem to have encouraged the resurrection men in their gruesome trade, partly because her anatomy schools have always been famous and then lacked material for human dissections, partly also because her kirk-yards were often far removed from human habitation and unprotected. In the far past her lonely dead were dug up by the swarming wolves, and this probably led to the burials in lake islands. Tradition records this custom to account for the burials on the Isle of Handa, off the coast of Sutherland.

"There are plenty of subjects to be got here in the Highlands," writes Dr. A. C. H. to Joshua Brookes, who was collecting material to form his anatomical museum in 1825, "for there are churchyards without churches and very distant from any house." The passage suggests: "There's a pump: don't put him under it." The letter, if published, might certainly have become an incitement to a system of body-snatching, but Brookes seems to have kept it to himself. It remains in dim and dirty-looking manuscript. "I should suppose also," continues the writer cheerfully, "that from the great bodily exertion which the Highlanders are accustomed to in climbing their mountains, they will be capital subjects for demonstrating the muscles. Besides, the facility afforded for conveyance by steamboats" (then a new invention, which could be put to various uses) "is such that nothing would be more easy than to supply the whole London school from this quarter." It would be interesting to know whether, before the Anatomy Act of 1832, there were indeed any Highland corpses in the London dissecting rooms. That foreign visitors to, or denizens of, London were sometimes the victims of the resurrection men is sufficiently proved by the case of the Italian boy, Carlo Ferrari, murdered by Bishop and Williams, and brought to Partridge's dissecting-room in 1831.

Joshua Brookes was in constant communication with the resurrection men, from the "civil and well-conducted" Mr. Naples, author of the "Diary of a Resurrectionist," the original of which is in the library of the Royal College of Surgeons, to the very desperate ruffians, some 200 in number, who formed the rank and file of the body-snatching brigade. He quarrelled frequently with these men, apparently refusing them—for he was scarcely a rich man, though a very busy anatomical teacher—the douceurs and bribes they periodically demanded. Brookes's London sources of supply being thus unsatisfactory and his need for subjects great, he may possibly have thrown out hints to his distant correspondents that he would be glad of a supply from their parts of the country. Hence, perhaps, the curious letter quoted above and dated in a non-committal manner "West Highlands."

THE HEAD TROPHIES OF THE JIBARO INDIANS.

IN November, 1922, Sir John Bland-Sutton, in an address delivered before the Royal Society of Medicine,[1] called attention to the shrunken heads which constitute the war trophies of the Jibaro Indians. An account of these remarkable objects has just been published by Dr. Rafael Karsten in a paper on Blood-Revenge, War and Victory Feasts of the Jibaro Indians of Eastern Ecuador.[2] Dr. Karsten has added a number of details to our previous information, both as to method of preparation and the beliefs and ceremonies which are connected with these heads.

As regards the method of preparation, the head is severed as near the trunk as possible. A ceremony then takes place in which the head is placed on a leaf of a species to which magical properties are ascribed, and covered with another. The taker of the head then places himself on this "seat," and juice of tobacco and saliva are blown through his nose by the chief. If more than one warrior has participated in the taking of the head, all go through the ceremony in turn. This is to protect them against the revengeful spirit of their slain enemy. The preparation of the head then begins. The skin is slit at the back of the head from the apex downwards, and is carefully stripped from the skull. The skin is then attached to a vine and boiled. A ring of creeper is made for the neck, and the back of the head sewn up with thread. The actual reduction is effected by means of hot sand introduced at the aperture of the neck, but before that is done, the shrinking is begun by the use of three stones heated in a fire and introduced each in turn into the head and rolled to and fro within it. The object of this is to mortify the soul of the killed enemy, which is believed to be attached to the scalp, and keep it at bay. That this process is purely ceremonial is shown by the fact that it is repeated later at the great feast (which every taker of a head has to give) when it can have no practical aim. In the process of reduction sand heated in a piece of broken clay is poured into the head until it is half full. The head is kept in motion so that the sand may act equally on all parts. This removes the flesh, thins the scalp, and reduces the head. When the sand cools it is poured out and the inside of the head is scraped with a knife to remove the charred matter. This is repeated until the head is reduced to the size of an orange. While the process is going on, the head and features are moulded by the hand to retain their human semblance. Three small pins of *Chonta* palm, painted red and wound with red-painted cotton, are passed through the lips, but these are replaced at the great feast by three red-painted strands of cotton. Lastly, the whole face is dyed with charcoal. Particular attention is paid to the hair, which may be half a metre long. It is the most essential part of the trophy, and is believed to be the seat of the soul. At each stage of the preparation of these shrunken heads there are appropriate ceremonies which serve to throw light on the mentality and beliefs of the Jibaro. The head itself is an object charged with supernatural power. The pins or string passed through the lips are explained by the Indians as designed to prevent the heads from cursing them—an explanation alluded to by Sir John Bland-Sutton—but it is more than probable that their real aim is to keep the "soul of the enemy under magical control."

The heads of enemies of another tribe only are taken. The shrinking of a head to form a war trophy is a deadly insult to the whole tribe to which the victim belongs, and it is therefore explicable that they should avoid performing the operation upon anyone with whom blood kinship might be claimed. It is also significant of their stage of development that they take the heads of animals, in particular of the sloth and jaguar, and treat them in the same way. Their explanation of this is that all animals were once men—the sloth belonged to a tribe other than the Jibaro, and therefore was an enemy, and the jaguar was a sorcerer. When the animals were men they fought among themselves and made trophies of heads, and the Jibaro keep up the practice in the case of certain animals. It may be noted that the sloth is killed with a lance just as a man is killed, and the same purificatory rites are enjoined upon his slayer as would have been had he killed a human enemy.

JEYES' VAPORISER.

THE Jeyes' Sanitary Compounds Co., Ltd. (64, Cannon-street, London, E.C. 4), in addition to their well-known and useful preparations of Cyllin, Lano-Cyllin, and Lysol (Jeysol), have produced a Vapor Jeyes for use in generating a non-poisonous and non-irritant vapour for the relief of catarrhal affections. The vapour may also be used for the disinfection of sick rooms and other similar purposes. The preparation is devoid of unpleasant odour and has a guaranteed Rideal-Walker coefficient of 8–10. For its use a simple, but effective, vaporiser is supplied consisting of a metal cylinder in which water is heated by means of a night-light, the Vapor Jeyes being placed in a shallow dish over the top of the water. The simplicity and portability of the apparatus are commendable.

THE LEITZ CATALOGUE.

FOR the excellence of their microscopes and microscope accessories Messrs. Ernst Leitz, of Wetzlar, enjoyed in this country before the war a great and well-deserved reputation. If they have been able under post-war conditions to maintain the level of their workmanship as they have maintained the level of excellence in their catalogue, they have done well indeed; for their new catalogue is praiseworthy both in substance and in form. To one small point exception may be taken. In discussing their high-power objectives they say "in the resolution of minute structural elements, where the image results solely from the effects of diffraction the numerical aperture plays a very important part." We should have thought that the exploded Abbé theory, from which its author receded before his death, had been, by this time, so much discredited by the criticisms of Rayleigh, Wright, and others that it could no longer serve even the purposes of advertisement. But Messrs. Leitz seem to think otherwise, and where it is a question of the market value of pseudo-science we cannot presume to set our opinion against theirs.

LIVINGSTONE COLLEGE.

IN the annual report of the College for 1922–23, which has just been issued, it is stated that during its 31 years' existence the College has trained 752 students (excluding those entering for short courses), of whom 482 remain at work. The greater proportion of the old students are working in parts of Africa, India, and China, where the invaliding and death-rates are the highest of any mission field. As indicated in the report in THE LANCET (1923, i., 1291) of the Commemoration Day gathering on June 13th, it is hoped that the College will take a by no means inconsiderable part in the application of new remedies for the amelioration and cure of leprosy. The Committee noted with satisfaction Sir Leonard Rogers's statement that the College could be of great use in training men and women to help in this work in districts where no doctor is available. The promise of a marked increase in the number of students during the year was not realised. Political unrest and commercial depression have lessened the resources in money of the missionary societies, and fewer recruits are being admitted and sent out. Sixteen missionary societies were represented amongst the students taking the course during the year 1922–23, when eight entered for the full session, six for six months, and eleven for three months or less. Twenty-three entered for the vacation course in July, from 12 societies, and, in addition, 37 students have taken the short course on "Personal Care of Health in the Tropics." The report includes notes written by former students now working in Bechuanaland, East India, Rhodesia, and Nigeria, testifying to the value of their short medical training at the College. The balance deficit of the institution has been reduced to £1109, but the Committee hope for continued and increased subscriptions, which should be sent to the Principal, Livingstone College, Leyton, London, E. 10.

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[1] THE LANCET, 1922, ii., 995.

[2] Bull. 79, Bureau American Ethnology, 1923.

SURGICAL RUBBER GLOVES.

FROM Messrs. J. G. Franklin and Sons, Ltd. (Birkbeck Works, Birkbeck-road, and 11–17, Colvestone-crescent, London, E. 8), we have received a sample of surgeons' rubber gloves which possess great strength and flexibility. They are seamless and the surface, while pliable and soft, is just sufficiently roughened to give a firm grip. Apparently no expense has been spared by the manufacturers in the production of the gloves, which are of British manufacture and made of the finest Para rubber. For surgical and post-mortem work they possess the qualities desirable in articles of this kind.

THE WELSH MEDICAL CURRICULUM.

WE have received from the Registrar of the University of Wales a copy of the calendar for the academic year 1923–24, containing amongst other things the text of the University charter, the names of authorities and office-bearers, the pass-lists of examinations for degrees, certificates, and diplomas in 1923. Physiology is now a final honours subject at University College, Cardiff, and a pass-list in medicine, surgery, and obstetrics appears for the first time; also, for the first time there are lists of diplomates in public health and in tuberculous diseases. We learn that at a University Court, held in Welshpool on Nov. 23rd, the proposal to pledge medical graduates in the University of Wales by declaration to professional rectitude was carried by a large majority.

THE ST. DUNSTAN'S CLINICAL THERMOMETER.

WE have received a clinical thermometer in a special case which is sold under the name of St. Dunstan's Clinical Thermometer. It is made by Messrs. J. J. Hicks and Co. (8, 9, and 10, Hatton-garden) for the inventor and patentee, Dr. McDonnell, who has offered to devote half of the profits accruing from the sale to the funds of St. Dunstan's, an offer which has been accepted by the authorities of that institution. Notable features are that it has a special case which is not larger than that of the ordinary thermometer, but which is ingeniously made so as to contain any desired disinfectant and yet be non-leakable. The outer metal case is incomplete at one spot showing an inner glass tube which contains the disinfectant. Inside this glass tube is a small rubber band which protects the bulb of the thermometer by keeping it away from the sides of the case. The top end of the thermometer has a vulcanite cover which serves as the cap closing the tube containing the disinfectant. We have used the specimen sent to us, and have found it a satisfactory and convenient instrument. The price is 6*s*. 6*d*.

COLONIAL HEALTH REPORTS.

Gibraltar.

THE Colonial Secretary (Major C. W. J. Orr, C.M.G., R.A.), in his report for 1922, estimates the total civil population at 17,327, of whom 16,182 are fixed residents. These figures, it is explained, represent the population between sunset and sunrise; to calculate the daily population it would be necessary to add some 8000 aliens and 1500 British subjects resident in the neighbouring Spanish town of La Linea who come into Gibraltar daily. The birth-rate in 1922 was 22·67 and the death-rate 17·54 per 1000. The general health and sanitary conditions during the year were excellent, and, with the exception of an outbreak of influenza of a mild nature, there was no disease in epidemic form. The general climate is mild and temperate, though somewhat hot and oppressive during the months of July and August. The meteorological record for 1922 shows 70·6° F. as the mean maximum temperature, the highest shade temperature being 95° on August 7th and the lowest 42° on March 23rd. The rainy season spreads over the period from September to May; the annual average rainfall is 35 inches.

British Guiana.

A report for 1922, signed by Mr. G. Ball-Greene, Assistant Colonial Secretary, states that the colony remained free from epidemic disease and the general health was good. The estimated population on Dec. 31st was 297,817 (150,987 males and 146,830 females). The birth-rate was 27·8 and the death-rate 29·1 per 1000. The rates amongst the several races representing the community were:—

	Birth-rate per 1000.		Death-rate per 1000.	
Europeans other than Portuguese	7·9	16·6	17·0	24·2
Portuguese	19·7		26·7	
East Indians	28·1		32·7	
Chinese	28·4		22·6	
Aboringes	30·2		26·2	
Blacks	27·0		28·5	
Mixed races	33·3		19·3	

The climate is hot, but not unhealthy. The mean temperature throughout the year is 80·50° F., the mean maximum being about 85° and the mean minimum 75°. The heat, which is greatly tempered by cooling breezes from the sea, is felt most from July to October, owing to the partial cessation of these breezes. There are annually two wet seasons, from June to the end of August, and during December, January, and February. The annual rainfall for the past 72 years averages about 93 inches in Georgetown; in 1922 it was 104·41 inches.

Barbados.

According to the census taken in 1921 the total population of Barbados, the most easterly of the West Indian islands, was 156,312, of whom 10,429 were described as whites, 111,677 blacks, and 34,216 as "mixed." The following table shows the birth- and death-rates for the past five years:—

	Birth-rate per 1000.	Death-rate per 1000.
1918	38·02	25·95
1919	33·94	38·21
1920	37·07	32·90
1921	32·62	43·42
1922	34·33	22·41

There has hitherto been no registration of the causes of death in the colony, but the high death-rate recorded in 1921 is attributed to an outbreak of typhoid fever in that year. Barbados is reputed the healthiest of all the West Indian islands, and is much patronised by residents in the neighbouring colonies as a health resort. The anopheles mosquito is not found in the island. This is a somewhat curious fact, since it is certain that they must be imported not infrequently in vessels which in many cases lie in the "Careenage" or inner harbour for considerable periods, on arrival from places where they are prevalent. The conditions, however, are evidently unfavourable to their breeding ashore. The hot and rainy season lasts from the beginning of June to the beginning of November. The island gets the full benefit of the north-east trade-winds, and between November and May the night temperature sometimes falls as low as 64° F. For the greater part of the year the temperature is delightfully equable, and the heat is seldom oppressive. The winter months are regarded as the "tourist season." The average rainfall for 1922 was 54·55 inches, varying in different parts of the island from 42·87 inches to 70·90 inches in the higher lands. The heaviest fall in a separate month was in September—12·04 inches.

MECHANICAL APPLIANCES FOR CRIPPLES.

Mr. Gabriel Bidou is an engineer who has devoted many years to the perfecting of mechanical appliances which enable crippled individuals to stand and walk. Although primarily a mechanician, Mr. Bidou shows a due appreciation of the psychology of the cripple, and is not unmindful of the many effective mechanical devices which have been inspired or actually designed by members of the surgical profession. In a recently published little book [1] he has put together a useful account of the various materials employed in the construction of appliances, together with a description of accurate methods of measuring and fitting. As might be expected from a member of the author's profession, the whole problem is approached from a mathematical basis. A full description with illustrations is given of the various types of apparatus used by the author for patients suffering from paralysis, amputations, and deformities. The question of mechano-therapeutics and curative occupations is dealt with very fully. The book has an introduction by Prof. Babinski, who is obviously a great admirer of the work of this ingenious engineer. Its title is perhaps a little misleading, as we find some difficulty in admitting the author's claims that his methods are entirely "new." In this country, at least, appliances of a similar type have been employed by orthopædic surgeons for many years.

A. A. M.—Epilation by electrolysis appears to be harmless, and it can be rendered painless by local anæsthetic, but this is seldom given for the purpose as its action soon wears off, so that there is not time for removing many hairs. Scarring is very slight, and not noticeable unless a number of hairs close together, as in the ordinary beard or moustache, are all removed; then there remains a slight degree of puckering of the skin. Discoloration is not produced by electrolysis. It would be possible to epilate over a large area by removing one hair at a time, but the process takes an exceedingly long time. In actual practice electrolysis is advisable only in cases in which the hairs are stout and not close together; or in cases where there is a small bunch together, as seen, e.g., in some moles, or in some cases in which there are some more evident and dark hairs situated among finer ones—the more evident ones would then be removed. Fine hairs, even if long, are very difficult to remove permanently.

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[1] Nouvelle Méthode d'Appareillage des Impotents. By Gabriel Bidou. Paris: Les Presses Universitaires de France. 1923. Pp. 244 and plates. Fr.25.

An Address
ON
TRAUMATIC NEURASTHENIA.

Delivered to the Oxford Medical Society on Nov. 9th, 1923.

By E. FARQUHAR BUZZARD, M.D. Oxf.,
F.R.C.P. Lond.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL.

The subject of my address is one which, for a variety of reasons, should be of interest to everybody. It is constantly before members of our profession as a difficult problem in relation to diagnosis and treatment; it is a source of perpetual annoyance to lawyers whose minds are as confused as are those of their medical brethren in regard to its nature and significance; and it is a matter of economic importance to the community at large in that it occasions an enormous waste of time, energy, and money. Such reasons alone might be sufficient to justify my choice, but there is another which has still more weight. The term, "traumatic neurasthenia" and the uses to which it has been put have brought profound discredit, and, I feel bound to add, in many instances deserved discredit, to our profession. As far as I can see our professional reputation is not likely to be reinstated in the eyes of the public or of the law until every medical man and woman has a clear conception of what is meant by this much abused term, and is able to express that conception in language as lucidly as he or she would explain the meaning of "fractured clavicle" or "gastric ulcer." It is, perhaps, fortunate that we are not often called upon to interpret in public all the terms which are to be found in an index of medical nomenclature. It is most unfortunate that we are frequently asked in public to indicate exactly the meaning of "neurasthenia" and its causal relationship to trauma, and it is a calamity that our efforts to do so should so often evoke derision from the body of the court or judicial witticisms from the bench.

It is only necessary to hear the evidence given in workmen's compensation cases in regard to traumatic neurasthenia in order to understand how difficult it is for the legal profession to take this evidence seriously. In one such instance the following statement was made by a medical man in describing a patient alleged to be suffering from traumatic neurasthenia: "My opinion of this case is that his symptoms are entirely functional. The question is how much of these are genuine. Probably some of the symptoms are genuine, but he is giving way to them." The lay mind must be considerably exercised to find the expert knowledge wrapped up in such an opinion. On the other hand, I confess to have been equally confused by the words I shall quote from a lawyer's letter: "The employer's case is that the man's inability to work is caused by his brooding over the effects of the accident and that he is suffering from weakness of will and a fixed but erroneous idea that he is a chronic invalid. If they establish this proposition, then the court would have power to refuse further compensation. If, on the other hand, this man is suffering from neurasthenia, as we are advised, he is then entitled to a continuance of the compensation." To my mind the employer's proposition affords a definition, although perhaps a crude one, of what is meant by the term "neurasthenia." In other words, I should regard the alternative diagnoses, on the choice of which legal judgment would depend, as meaning one and the same thing. Herein lies the crux of the whole problem, and the cause of the confusion which at present fogs the medical and legal mind. In order to disperse these mists it is essential hat we should establish clearly in the first place the nature of neurasthenia, and secondly the causal relationship between trauma and that condition. It is my purpose to examine critically the facts with which experience has provided us, and to consider whether, as a result of this examination, we can arrive at some scientific and practical conception of what the term "traumatic neurasthenia" really means.

Three Groups of Cases.

Let us begin by recording what experience teaches us in regard to types of neurasthenic patients who attribute their condition to injuries. There are three groups of cases. The first group, which comprises the great majority of cases, can be labelled "anxiety neurosis."

Group 1. "*Anxiety Neurosis.*"—These patients give a history of injury to any part of the body, the head perhaps being the commonest site. They differ in no respect from cases of anxiety neurosis, such as we meet with in ordinary practice without any history of injury, or from the most common type of shell-shock victim met with during the war. They complain of constant "pressure" headache, insomnia, fatigue, giddiness, tremors, inability to concentrate, loss of appetite, and pain and tenderness at the site of injury wherever it may be. When you examine their eyes they blink continually, and each voluntary movement they are asked to perform is carried out feebly, hesitatingly, and perhaps tremulously. Their whole appearance is one of anxiety and misery, but careful examination reveals no evidence of organic mischief.

Group 2. "*Spinal.*"—The second group comprises a much smaller number of patients, but the picture presented is characteristic. It may be labelled the "spinal" or, in more vulgar but descriptive language, the "my poor back" group. The patient invariably walks into your room leaning on a stick in one hand, with the dorsum of the other placed over the lower part of his back. You know at once that the site of his injury is his spine. As a matter of fact many of these patients have suffered only from a sharp attack of lumbago, while making a physical effort in the course of their employment. In addition to their characteristic attitude they often present also the symptoms of anxiety neurosis. Again, examination reveals no sign of organic disease, but there is a superficial tenderness over a great part of the spinal column.

Group 3. "*Hysterical.*"—In this group the anxiety neurosis is often associated with some definite hysterical symptom, such as hemiplegia, monoplegia, paraplegia, &c. These cases are not very common, and their occurrence is immaterial to the question under investigation.

Site and Severity of Injury.

As already stated, the development of neurasthenia has no constant relationship with the site of injury. The nervous symptoms are more likely to follow a blow on the head, or a strain of the back, but they frequently present themselves after an injury to a foot or hand. Direct injury to any part of the central nervous system, therefore, is not necessary for the production of neurasthenia. On the other hand, it is not unreasonable to suppose that the awe with which the lay mind regards an injury to the skull or to the spine may be sufficient to account for the frequency with which such injuries are followed by neurasthenia. The severity of the injury, again, has no bearing on the development of neurasthenia. The latter may follow trivial injuries to the limbs as well as a severe concussion. But there is one exception to this rule, an exception which is not without significance. It is rare to find an injury which inflicts permanent physical disablement on a patient followed by neurasthenia. The man who loses an arm or a leg as the result of a railway accident does not suffer from an anxiety neurosis, unless, of course, he has entirely other reasons for doing so.

So far a consideration of our experience in cases of traumatic neurasthenia allows us to form two definite conclusions. In the first place, the clinical picture of traumatic neurasthenia is identical with that of anxiety neurosis. In the second place, the incidence of neurasthenia on trauma is quite independent of the site or severity of the latter. On what does this incidence depend ? This is a question which we should be able to answer. We have to find a factor which is always present in cases of traumatic neurasthenia, and which is generally absent when trauma is not followed by the neuropathic features we have described.

From what I have already said it would seem impossible to find that factor on the physical side. Any attempt to correlate the part injured or the nature of the structural injury with the evolution of neurasthenia, has been shown by experience to be doomed to failure. Naturally we turn for light in other directions, and the question of the patient's inherent or constitutional reaction automatically engages attention. We may be tempted to seek for and find in each patient suffering from traumatic neurasthenia some evidence of hereditary nervous instability. There can be no doubt that such a proposition is attractive, and that it contains at least the germ of truth. But does it satisfy our minds as *the* factor determining the development of neurasthenia after trauma ? Speaking for myself the answer is in the negative, willing as I am to allow it its legitimate due.

The Question of Responsibility.

Having given this question much thought, and having seen and studied quite a large number of patients suffering from traumatic neurasthenia, I have come to regard one factor as having a more profound influence than any other in determining the advent of neurasthenia after trauma. I refer to the question of responsibility. Is the patient responsible for the injury, and has he to shoulder the burden of its results, or can he shift that responsibility and that burden on to others ? Auto-responsibility or hetero-responsibility ? If the latter is to hand then we have the initial preparation of the soil favourable to the growth of neurasthenia. We love to shift responsibility, and, having done so, we have leisure and liberty to study the injury in detail and all the results which it entails. More than that, we are ready to shift the responsibility for recovery on to others, and tacitly to reserve to ourselves the right of determining the length of the illness. What a difference there is between slipping and falling downstairs, due to our own carelessness, and doing the same thing as the result of a push. The emotion of anger and the sense of injury are added to physical discomforts, and are more than likely to prolong disablement. I do not think I am exaggerating the importance of hetero-responsibility, when I submit that it prepares the ground for the crop of nervous symptoms following trauma, but I must offer you some evidence on this point.

Accidents and injuries are among the commonest incidents of everyday life, and certainly not more than one in a thousand is followed by neurasthenia. In the course of years of practice I have seen a large number of cases to which one could apply the name "traumatic neurasthenia," but I cannot recall one in which the responsibility for injury has not been placed away from the patient. These patients have been workmen's compensation cases, railway accident cases, motor accident cases, soldiers, sailors, &c. ; employers, insurance companies, railway companies, and the State have supplied the responsibility. Let us take another sphere of action in which accidents, trivial or severe, are frequent—i.e., the hunting field. It is true that one occasionally sees a patient from this source who presents features resembling those of traumatic neurasthenia, but they are always cases of neglected concussion, never cases of injury to other parts. Moreover, such cases are easily cured, whereas traumatic neurasthenia is almost proverbial for its resistance to treatment.

But if hetero-responsibility prepares the soil, whence come the seeds ? In order to learn something about traumatic neurasthenia, as in all forms of neurasthenia, you must let your patient talk, you must encourage him to recall every detail of his accident and all subsequent events. He will tell you many things which, apparently unimportant, have great significance. There you will find your seeds.

A Typical Story.

Let me describe the sort of story you will hear. Smith is injured in an accident occurring in the course of his employment. The accident took place in such a way that it caused a considerable emotional disturbance—that of fear. This is often called shock, but is distinct from surgical shock. The injury caused pain, and the doctor on examining him said : "By Jove, you have had a narrow squeak ; an inch to the left and the blow would have broken your back." A restless night during which he remembers that there were only three men doing what ought to have been done by four. This gives rise to the sense of injury. His employers are responsible for his suffering. A mate comes to see him a day or two later, and reminds him that Jones had a somewhat similar accident and was dead within a year. (It is immaterial from their point of view that Jones died of influenza and pneumonia.) His wife is a plucky woman and sympathetic, also much incensed against the employers because of the neglect to supply sufficient labour for the job. She makes him comfortable at home, in spite of shortened means. His injury is really slight, and after going to the hospital or his doctor twice a week, for two or three weeks, there is no physical disablement. But the seeds which were planted have grown, and will continue to grow, with the result that you soon have a condition of anxiety neurosis in full bloom. If the doctor said he had had a very narrow squeak, it is obvious that he must have been very seriously injured, and he could not be well in a month. Even if he appeared well there was always the possibility that something else would develop. Did it not in the case of Jones ? It must be remembered that to the lay mind trauma is still the most important and universal ætiological factor in medicine, just as it was in medical text-books 50 years ago. A pain here or a pain there is sufficient to keep him on the alert for complications and sequelæ. Fear and anxiety keep him awake at night, and so the vicious circle is formed. Beneath the surface all the time is the knowledge that his employer was responsible for making him ill, and is still responsible for getting him well. Yes, he will go into hospital for treatment, but under protest. He will come out of the hospital worse than he went in, and more convinced thereby that the injury he received was far more serious than other people, particularly the insurance officers, realised. Weeks, months, and, perhaps, a year or two pass by. He has either become incurable or is tempted by a lump sum of money in full compensation of all his claims. Accepting this, he has, unwittingly, resumed responsibility for his health, and sooner or later health is restored to him.

The case of Mr. Robinson, however, is rather different. He was in a train returning from business when a collision occurred. He was thrown across the carriage and considerably bruised, and not a little frightened. What with his bruises and fright he had several restless nights, in the course of which he explained to his wife the dastardly neglect of the railway company in allowing an hour to elapse between the collision and his being conveyed to a place of safety. This indignation grows as his bruises and fright disappear. He feels disinclined to return to business, and his doctor has hinted that two or three weeks at the seaside in order to get over the "shock" are advisable. After all the company must pay for this, and it is a long time since he had a good holiday. On his return he is not yet inclined to work, and, meanwhile, the question of how much compensation is due to him has become, and is still, a matter of dispute between his and the company's lawyers. He is given to understand that he is suffering from traumatic neurasthenia, and it is impossible to say when anyone may recover from that disease. Anyhow, the company is responsible not only for the disease, but for financing him until he is well. Litigation threatens, further medical examinations ensue, a sum is offered; shall he accept it? More sleepless nights, and the picture of anxiety neurosis, complicated by the sense of injury, is complete.

Now let us look for a moment at the other side. A hunting man sustains a severe concussion as the result of a fall. His doctor tells him he was within an inch of breaking his neck. He has nobody but himself or his horse to blame, and accepts the medical dictum n the spirit that a miss is as good as a mile. After a few days' rest he is feeling so much better that he wants to know when he may get up, and how long it will be before he can hunt again. Provided he is kept ong enough at rest there will be no neurasthenia. If, on the other hand, he is up too soon, headaches will develop, and he will find he is very easily tired and quite unable to concentrate. A further period of rest would get rid of these symptoms, but neglect of such precautions would probably mean the establishment of a neurasthenic state from which recovery may be slow.

The Seeds of Neurasthenia.

Before turning to other aspects of my subject, let me consider briefly one or two of the seeds of neurasthenia to which I have referred. I purposely brought n the doctor as a seed, because I am convinced that care in talking to patients who have sustained injuries is of the utmost importance from a psychological point of view. Such patients are in a very suggestible condition, and the most trivial remarks of the doctor n attendance are apt to produce lasting impressions. Of this I have had many illustrations, brought out by conversations with neurasthenic patients. My reference to the wife originates from the observation of nsurance doctors, as well as from my own. It is rare to find a traumatic neurasthenia persisting for any length of time unless the woman responsible, be it wife or mother, is above the average in her ability to maintain a comfortable home.

Nothing, perhaps, stands out more prominently than he sense of injury if you indulge in conversation with patients suffering from traumatic neurasthenia. There can be little doubt that it is a psychological actor of much importance in promoting and maintaining the patient's ill-health. It is a vague, intangible disease of the mind, almost a psychic cancer, difficult o eradicate, and calculated to block all recuperative processes. It forms one of the chief obstacles in the path of treatment. There is a wrong to be righted, and until that has been done to the satisfaction of the wronged the latter is not likely to turn his attention away from his injury to the ordinary affairs of life.

Its Prevention.

But having given due prominence to the difficulties of treating and curing a patient with traumatic neurasthenia, let me point out that much may be done to prevent it. It is not a condition found mmediately after an injury; it only exhibits its first ymptoms as the bruises are disappearing, and very ften at a still later period. But it sprouts and grows under the doctor's nose, and if he is quick to detect he noxious weed and alive to the dangers associated with its growth he may successfully nip it in the bud. This, no doubt, is often done by practitioners who are n the habit of studying their patients' minds as well s their bodies, but in many instances the former are eglected. The incipient signs and symptoms may, perhaps, be noted but regarded as outside the sphere of medical attention and as the natural sequence of an njury, attributed to that vague factor "shock." A ttle clear thinking should make one realise that the ffects of shock are most manifest immediately after njury, and tend to disappear slowly or quickly as the ase may be. On the other hand, the nervous ymptoms which we are discussing make their ppearance later and progressively increase as time oes on. A little psychotherapy applied early in hese cases would be far more valuable than lint and andages. As in all spheres of medicine, early iagnosis and appropriate treatment is the secret of uccess.

Two Schools of Thought.

At the beginning of my paper I expressed my belief that the disrepute into which medical evidence on cases of traumatic neurasthenia has fallen was occasioned by the absence of a clear conception of the pathology of that condition. There appear to be two schools of thought. The one favours the view that an injury of any degree of severity and inflicted at any site may produce a physical condition of the nervous system, with characteristic signs but without any morbid anatomy, to which the name traumatic neurasthenia is fairly applicable. The other view, and I submit the true one, is that the signs and symptoms of traumatic neurasthenia are those of an anxiety neurosis, complicated by certain factors to which I have drawn attention, and that it should be regarded as an emotional state, dependent not on any physical disturbance caused by trauma, but on a number of psychological factors. Although the knowledge that an injury has been sustained exerts a powerful influence in the development of neurasthenia, the latter is not the result of trauma. Furthermore, it must be recognised that the power of the influence exerted by the knowledge that an injury has been sustained would be very small unless it were accompanied by the ability to shift the responsibility for the injury and its effects on to other shoulders. It is quite true that there are many physical manifestations present in all severe cases of neurasthenia, and that they may truly be regarded as disabling, but our knowledge of the physical manifestations of the emotions enables one to recognise those of traumatic neurasthenia as those of chronic fear. After all, what is anxiety but chronic fear?

As medical men we are not in any way bound to go further than this. The final decision as to whether a condition such as I have described is to be legally regarded as the result, direct or indirect, of injury must rest with judges who interpret the law of the land.

Legal Problems.

At the present time, according to the letter I have already quoted to you, the courts recognise two conditions, one of which is a mental state characterised by brooding, weakness of will, and fixed ideas, and the other "traumatic neurasthenia" which, having a name, is in no need of further definition. A name is so satisfactory even when it means nothing; it becomes part of the established order of things and discourages all curiosity or investigation. The irony of the present position is that if you suffer from a certain kind of mental disorder following an injury, and it is called traumatic neurasthenia, you are entitled to compensation; but if the judge prefers to describe the identical condition in other language, then you must forfeit your claim. That legal judgment should continue indefinitely to be based on such a confusion of ideas seems hardly possible, but it is difficult to see how reform is to be brought about unless the medical profession becomes united in its opinion as to the meaning of traumatic neurasthenia, and each individual member of it is able to supply an intelligible interpretation of that meaning. What is a judge to do if medical witnesses on one side say that a man is suffering from brooding, fixed and erroneous ideas, and on the other side that he is suffering from traumatic neurasthenia.

The judicial mind is bound to regard the latter diagnosis as that of some dire disease, of which the name is sufficient to indicate its origin from physical injury. He can have no choice, under existing laws, to do anything but continue compensation so long as this, perhaps interminable, disease persists. On the other hand, he can decide that the patient is not suffering from physical disablement, but is brooding and harbouring fixed and erroneous ideas, a decision which enables him to stop compensation. What a quibble! Would not the following judgment cover both cases? I find that Mr. Smith is no longer prevented from working by reason of any injury he may have sustained as the result of the accident, but that he is suffering from an emotional disorder which has its origin in anxiety and other psychological factors. But such a judgment would not necessarily bring the judge's difficulties to an end. Sooner or later it will have to be decided whether compensation can be claimed for a disorder of the mind, call it either neurasthenia or anxiety neurosis, following an injury for which another person or body is responsible, but not resulting from that injury. This question has already, I believe, been a potent source of trouble to the legislators of other countries, and is one which sooner or later must be faced here. It is a question full of snares in which justice and mercy may easily be entangled. The mind of the general public is as yet quite incapable of realising that a condition of ill-health and disablement can be the result of psychological influences alone, and a decision that compensation could not be recovered for neurasthenia following an accident might be the subject of an outcry. On the other hand, a contrary decision constitutes a direct appeal for the development and maintenance of neurasthenia whenever the responsibility for trauma can be foisted on the shoulders of others, and especially when a sense of injury has, rightly or wrongly, been acquired.

These legal problems, however, are not for us to solve. Our duties lie in a different and even more important direction. If we are convinced that traumatic neurasthenia, or "anxiety neurosis following trauma," as I should prefer to call it, is a mental disorder recognisable in its infancy, it is our duty to prevent its development. We must be on the look-out for the earliest symptoms, just as we look out for a rash in a person who has been exposed to measles, and we must be prepared to fight them without delay. We must realise that they are the advance guard of an insidious disorder capable of producing far-reaching results and distressing disablement, and we must be ready to give them battle on their own ground and at the earliest opportunity. Our weapons must not be merely the advice to take plenty of exercise in the fresh air, and a bottle of medicine repeated week after week, but a free expenditure of time devoted to fathoming the contents of the patient's mind, and an honest endeavour to re-establish a healthy mental outlook. Bring the anxieties and fears and misunderstandings to the surface, expose their fallacies, and disperse the germs of revenge and greed.

It is impossible to encourage and reassure successfully an anxious and perplexed patient until you not only understand his fears and difficulties, but have convinced him that you have thoroughly mastered them.

DIAGNOSIS AFTER HEAD INJURIES.

Before concluding, may I say a few words in regard to diagnosis in the case of patients who have suffered head injuries? I refer to patients who have had more or less severe concussion, and who complain of subsequent headaches and mental disabilities in the form of defective concentration, defective memory, depression, fatigue, and so on without any physical signs of disease. It is convenient to approach such cases with the idea of discriminating between three different conditions, each of which has characteristic symptoms and appropriate treatment. I have already referred to the first group to which might be given the name of true traumatic neurasthenia. A member of this group has had a definite head injury with concussion, the severity of which may be roughly measured by the length of retrograde amnesia. He has been kept at rest in bed for an inadequate length of time, and after getting about suffers from headache of the neurasthenic type—that is to say, more or less continuous and described as pressure on the vertex, or as a tight band round the temples. He is easily tired and cannot concentrate, thinks his mind is becoming defective, becomes depressed and anxious, and finally presents the characteristics of a neurasthenic patient. Such cases can be prevented from developing if sufficient rest is prescribed for patients who suffer concussion. They can be readily cured with rest and reassurance provided the responsibility is their own. The second may be described as the "contusion" group. In this case the patient recovers from the effects of his head injury in all respects except one. He finds that every attempt at physical exertion gives him a severe headache which is paroxysmal, not continuous, and more or less exactly localised over the site of injury. This site becomes tender when the pain is present, and sometimes when it is absent. An X ray examination may or may not reveal a bony injury. Not a few of such cases can only be relieved by surgical intervention, and when the skull is opened there is usually found some localised thickening of the meninges, and perhaps a collection of fluid in the subarachnoid space shut off from surrounding healthy parts by adhesions. At the site of bruising the brain has become anchored to the dura mater. The third group comprises the cases of anxiety neurosis following trauma, to which I have already devoted much of your time this evening, and which, as I have pointed out, are able to shift responsibility away from themselves. Their prevention and cure must depend largely on psychotherapeutic measures.

CONCLUSION.

In conclusion, I do not for one moment expect that the views I have expressed will be unanimously accepted. I shall be satisfied if I have provided some food for thought, and if I have established the case with which I opened in regard to the need for some clear thinking on the subject of "traumatic neurasthenia."

SYPHILIS AS A COMPLICATION OF TUBERCULOSIS.

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NUMEROUS inquiries have been made as to the incidence of a positive Wassermann reaction (W.R.) among the inmates of institutions specially concerned with the treatment of tuberculosis. The scheme of the present contribution is briefly to summarise the findings of various observers, and to analyse the results of blood examination for the W.R. in 500 patients resident in the City of Glasgow Sanatorium, Robroyston, which, in regard to number of beds—548*—is the largest institution of the kind in Great Britain. These examinations were carried out during the year 1922 as a routine measure on admission of the patients through the tuberculosis dispensaries of the city, the patients being both pulmonary and non-pulmonary and in no sense selected. The effects of antisyphilitic treatment in certain of the cases reacting positively were also ascertained and will be referred to in the last section of the paper.

The general details of the tests carried out are as follows:—

A. Subjects of pulmonary disease:—

No. of sera tested	223
No. of positive reactions	21

Approximate percentage of positive reactions, 9·42.

B. Subjects of non-pulmonary disease:—

No. of sera tested	277
No. of positive reactions	14

Approximate percentage of positive reactions, 5·05.

Previous Recorded Tests.

It has been taught generally that syphilitics are particularly susceptible to infection by the tubercle bacillus, and in 1914 Bronfenbrenner[1] published the results of an investigation into the frequency of tuberculosis in syphilitic subjects. Two tests were carried out. First, by means of Besredka's T.B.

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* Including 100 beds for convalescent patients in the Auxiliary Hospital, Robroyston.

antigen he examined the sera of 193 syphilitics. Eighty-three cases, or 43 per cent., were found to give a positive reaction for tuberculosis. Of these, 55 exhibited clinical signs of tuberculosis, while in the remaining 28 the latter condition had gone unrecognised. Secondly, for comparative purposes he examined 432 non-syphilitics—or, to be more precise, individuals who gave a negative W R. Of this series, only 100 persons, or 23·15 per cent., gave a positive reaction for tuberculosis. Bronfenbrenner thus concluded that tuberculosis was indeed peculiarly liable to become implanted on a luetic soil.

Tedeschi[2] claims that 70 per cent. of the cases of tuberculosis developing during a period of ten years of his prison service occurred in subjects of syphilis. Such a statement, while giving confirmation to the view that syphilis increases the susceptibility of an individual to tuberculosis, cannot be held as applicable to the general population, for Tedeschi dealt with a special type of patient living under conditions which may be presumed to have favoured a tuberculous invasion. Letulle[3] has recorded that 19 per cent. of 346 tuberculous patients in Bouciecaut Hospital gave a positive W.R. Recently, Munro[4] gave the following analysis of 100 cases investigated at the Fife and Kinross Joint Sanatorium :—

> Number of positive reactions 22, of which 6 (a remarkably high figure) were believed to be syphilis of the lungs ; 11 gave both Wassermann positive and sputum T.B. positive ; 3 were considered to be tuberculosis with W.R. positive and sputum T.B. negative ; and in the remaining 2 the W.R. reaction was positive and the diagnosis other than tuberculosis. Leaving out of account the 6 cases diagnosed on clinical grounds as syphilis of the lungs, there remain 14 per cent. of patients suffering from tuberculosis and giving a positive W.R.

These investigations thus fall into two groups—namely, (*a*) those of Bronfenbrenner and Tedeschi, and (*b*) those of Letulle and Munro. In the former case the question was gone into from the point of view of tuberculosis as a complication of syphilis ; in the latter, as in the present inquiry, syphilis was looked for as a complication of tuberculosis. For reasons already stated, Tedeschi's figures should be excluded from this discussion. Bronfenbrenner's results, however, may be said to stand as positive evidence for the view that a tuberculous invasion is specially favoured by a syphilitic soil. It is extremely difficult to estimate with any accuracy the precise incidence of syphilis among the civil population of this country ; but there appear to be grounds for placing its frequency at between 8 and 10 per cent.† Granting that this proportion is approximately correct, one would anticipate that, if Bronfenbrenner's findings were universally applicable, the proportion of luetic patients among those examined for the present review would be definitely higher than the 10 per cent. or thereabouts found among the general population. The facts do not confirm any such anticipation. If for the moment the 500 cases be grouped together into one unit, it is seen that only 35, or 7 per cent., gave a positive W.R. This figure varies widely from what the work of Bronfenbrenner would lead one to expect ; and the percentage is also strikingly low when compared with the results of Letulle and Munro, those of the latter being at least double 7 per cent.—*at least* double, because, in view of the work of Sir William Osler,[5] Sir James Kingston Fowler,[6] and others, it seems to be unlikely that in a series of 100 cases six of pulmonary syphilis should occur. Further, out of the 277 non-pulmonary patients examined—the great majority of whom were children—only 14, or 5·05 per cent., were found to be syphilitic, the lues in these instances being congenital with two possible exceptions.

It is not suggested that those figures show syphilis to be of less importance in its relationship to tuberculosis than is generally held. It is, however, not unreasonable to suggest that the coexistence of the two diseases may be less common than is frequently stated, and that syphilis may not directly predispose to tuberculous infection. This view is partly supported, among others, by Elliott[7] and Lyons.[8] The latter examined 471 cases of tuberculosis and found that 6 per cent. gave a positive W.R. The former, in commenting upon work done in the hospital of the University of Michigan, states that " 3 to 5 per cent. of our syphilitics have shown evidence of Koch infection." Elliott, however, amplifies his remark by adding that " this low percentage may be explained by the fact that a very large portion of our cases of syphilis are seen in the primary or early secondary stages of the disease. We have found tuberculosis to be more commonly associated with the older syphilitic lesions." This last sentence expressed what would naturally be expected—that the older syphilitic lesions are those most likely to be associated with tuberculosis—since there is nothing to suggest that syphilis is more easily acquired by tuberculous than by normal individuals ; but the results of the Robroyston series of cases, the positives among which were all either late or congenital, give no indication that there is any very peculiar susceptibility of syphilitic subjects to tuberculosis.

The question arises : Is it not highly possible that among the 500 cases examined there occurred a number of luetic individuals in whom syphilis was unrecognised both clinically and by the W.R. ? Cobbett[9] is of opinion that the reaction may be trusted to give as true a verdict as any of the other modern diagnostic tests ; and Sequeira gives the following results of blood examination in patients whose clinical signs pointed to a syphilitic infection :—

Stage.	Positive reaction.
Primary	90
Secondary	99
Tertiary	95
Congenital	100

These figures are substantially similar to those arrived at by other workers, and it may be taken that for practical purposes the W.R. carefully performed can be relied upon, at least in this country, where yaws and leprosy are practically unknown, to give sufficiently accurate knowledge of the prevalence of syphilis in a series of individuals whose blood is subjected to examination. As a matter of fact, in the present inquiry the number of patients in whom either history or certain physical signs were suggestive of syphilis, and in whom the W.R. was negative, was so small as to make no appreciable alteration in the percentages obtained. It may be reiterated, then, that no evidence can be submitted in this paper in support of the view that tuberculosis has a higher incidence among the syphilitic than among the non-syphilitic population.

Mistaken Diagnosis of Tuberculosis.

In respect of the present series the further question now arises : In how many instances did the primary diagnosis of uncomplicated tuberculosis break down on investigation and give place to one of pure syphilis ? Pulmonary and non-pulmonary cases may be considered separately. Practically all observers are agreed that syphilis of the lungs, difficulties of recognition notwithstanding, is rarely found with certainty either clinically or in the post-mortem room. The following extract illustrates the generally prevailing view.[6]

> Kingston Fowler, after a careful inspection of the museums of the London hospitals . . . was unable to find more than 12 specimens which are believed to illustrate syphilis of the lungs, and of these he excluded 2 as very doubtful specimens . . . On referring back to clinical notes of 1323 male patients suffering from various diseases, none of them hospital cases, and of the age of 20 and upwards, 53 cases presented a definite history of syphilis. Out of this number there were 5 cases of lung syphilis . . . On the other hand, out of the same series of cases there were 320 cases of pulmonary tuberculosis, in which only in 3, or less than 1 per cent., was a syphilitic history apparent.

In contradistinction to the above, Munro's investigation led him to the conclusion that 6 out of his 100 cases were clinically syphilis of the lungs. As detailed above, out of 223 pulmonary patients examined at Robroyston, 21, or under 10 per cent., reacted positively. In 10 of these cases syphilis was suspected, either from history or from physical signs; in 11 syphilis was unsuspected. At some time or other while the cases were under observation, either before or during the course of antispecific medication (see below), evidence of tuberculosis, in the form of *B. tuberculosis* in the sputum, was found in all 10 suspected cases and in 9 of the unsuspected cases. Of the remaining two, one, a married woman of 38, refused to remain in hospital. No tubercle bacilli were found during her brief residence and she received no antisyphilitic treatment. The other, an unmarried man of 37, exhibited clinical signs compatible in every way with chronic pulmonary tuberculosis, but no bacilli were ever demonstrated. After a full course of neokharsivan, combined with mercury and iodides, the improvement in his whole condition was so striking as to leave no doubt that a diagnosis of pulmonary syphilis should be substituted for pulmonary tuberculosis. Neglecting the case of the woman referred to above, whose case was almost wholly uninvestigated, this was the only instance in which such a decision could be come to; and the incidence of syphilis of the lungs in the cases under review may thus be placed at something below 0·5 per cent.

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† Vide Final Report of Royal Commission on Venereal Diseases, 1916.

The non-pulmonary cases are of less interest as regards mistaken diagnosis. Of the 14 cases giving positive reactions, 8 were suspected and 6 unsuspected, suspicion being based upon more or less obvious stigmata. In three instances—two suspected and one unsuspected—the diagnosis of tuberculosis broke down, and that of syphilis was confirmed by the results of treatment. In the others, the two diseases were found to coexist, the latter conclusion being dependent on clinical and X ray examination and on the results of treatment.

Results of Treatment.

If the question of the frequency with which syphilis and tuberculosis are associated in the same individual has been productive of conflicting views, the subject of antisyphilitic treatment in tuberculous patients appears to have led to still greater confusion. On the one hand, certain observers have claimed that very material improvement has followed the exhibition of 606 and its analogues, while others condemn antisyphilitic treatment, arsenical or otherwise, in cases where tuberculosis is known to exist. Disasters in past days have doubtless resulted from intensive mercurial treatment in certain tuberculous cases, and the effects of salvarsan in tuberculosis require the fullest consideration. It is impossible in this contribution to do more than indicate the results obtained during treatment of the present series of cases, and to correlate them with the work of others.

In the first place, the possibility of the one disease exerting a modifying influence upon the other must be borne in mind. That such an influence may exist is recognised. Thus Bonney[10] records the case of a young man with well-developed pulmonary tuberculosis which was quite resistant of treatment until, after the patient's dismissal from a sanatorium, he contracted syphilis and ultimately did well. What therapeutic methods were employed, and whether the outcome may be partially explained by a mutually antagonistic action of the two diseases, are points which are not clear; but that such an action may exist appears to gain in possibility from a detailed review of a number of the cases of the present series. Space is not available for such a review, but a few general indications may be given. Among the pulmonary patients, for example, were four in whom the physical signs suggested very chronic disease of tuberculous origin, but in whom tuberculosis could not be diagnosed with any certainty until, during the course of antisyphilitic treatment, the matter was cleared up by the appearance of tubercle bacilli in the sputum. This demonstration of bacilli for the first time occurred simultaneously with reactivation of varying degree of the disease in the lungs, as evidenced by general and, apparently, focal reactions. A summary of two illustrative cases is given below:—

CASE 1.—Female, aged 29, unmarried; notified T.B. and admitted June 28th, 1921. General condition fairly good, weight 7 st. ½ lb.; slight cough, sputum in very small amount, no tubercle bacilli, physical signs limited to left upper lobe and suggestive of very chronic disease. Syphilis unsuspected until W.R. was found to be positive in November, 1921. Treatment was general up till this point; patient in good condition, weight 8 st. 7 lb.; cough and sputum absent; physical signs practically nil. Commencing on Nov. 22nd, 0·15, 0·3, and 0·45 g. neokharsivan were given intramuscularly in creocamph at weekly intervals. Severe general reaction—headache, sickness, elevation of temperature—followed each dose. In middle of December cough and sputum reappeared and temperature became intermittent, the evening rise becoming gradually and progressively higher. Physical signs became much more marked and many moist râles appeared. Soon it became obvious that aggressive disease had set in, with rapid and widespread infiltration of the left lung and extension to the right. Tubercle bacilli were next found in the sputum in large numbers, and the diagnosis of tuberculosis was confirmed. In April, 1922, patient was transferred to another institution, where she died in the following June.

CASE 2.—Male, aged 51, married; notified T.B. April 6th, 1916; admitted June 28th, 1921. Chronic disease of at least 10 years' standing; general condition poor; very little sputum, in which no tubercle bacilli could be found by any method. Syphilis was suspected from the history, and the W.R. was found to be positive. Two full courses of novarsenobillon were given, each dose being followed by a general reaction, which was at first very slight but which became more marked in time. "Much pain at the top of the right lung" was frequently complained of after the injections—this probably indicating a focal reaction. During the second course of treatment tubercle bacilli appeared for the first time in the sputum, and the patient ultimately left the hospital of his own accord, depressed at being less well than on admission.

Arsenical treatment was given altogether in 17 of the pulmonary cases. In one, its administration permitted of a diagnosis of lung syphilis being substituted for one of tuberculosis; in four, treatment resulted in a certain diagnosis of tuberculosis where doubt had existed previously. There remain 12 cases which were frankly tuberculous from the outset. In seven of these, aggravation of the symptoms occurred either during or after treatment, each case showing definite focal and general reactions—increased temperature, aggravated cough, more abundant sputum, pain in chest, sometimes headache and sickness—after the injections, which in none of these cases were persisted with for more than six weekly doses. Any syphilitic stigmata present cleared up rapidly, but the satisfaction engendered by this was more than discounted by grave and rapid changes in the lungs. Five cases remain to be mentioned. All of these were apparently unaffected by the drug, and there was a striking absence of reaction after the injections. In no case did any special improvement occur, although the patients were living under sanatorium conditions.

As regards the non-pulmonary cases, 12 of the 14 positives were treated. In three of them a primary diagnosis of tuberculosis was upset and gave place to one of syphilis (one skin case, exactly simulating widespread multiple lupus, and two cases of knee-joint disease); in five, no influence of any kind appeared to be exerted by the drug; and in the remaining five there was distinct and progressive aggravation of symptoms and signs. These last cases showed focal reactions after the injections. Where obvious syphilitic lesions were present, treatment was followed by their reduction or disappearance. An illustrative case may be briefly quoted.

CASE 3.—Male, aged 2, notified multiple T.B. May 13th, 1922; admitted Sept. 6th, 1922. On examination child was extremely emaciated and pale; temperature showed slight variations from normal; physical signs, which suggested syphilis, were as follows: Tibial node; swelling over right parietal bone, slightly fluctuant; hard glandular swelling below mandible; swelling over third and fourth right metacarpals. Small doses of mercury and potassium iodide were commenced, and three weekly doses (2, 4, and 6 cg.) of sulfarsenol were given subcutaneously. The injections were followed by restlessness and heightened temperature and only three were given, the other drugs being continued. On Nov. 20th the general appearance was much improved and the cranial and tibial nodes had practically disappeared, but the metacarpal and submandibular disease had progressed rapidly. Both lesions had broken down and were discharging, in spite of repeated aspirations, giving rise to typical tuberculous sinus formation and ulceration, followed by a mixed infection. A fresh glandular swelling had developed in the neck and was softening, and the temperature was widely intermittent and at times remittent. There was now no question that the child was suffering from combined tuberculosis and syphilis.

This case provides a good illustration of what has been referred to as the possible mutual antagonism of the two conditions. According to the statements of the child's parents, all the swellings had remained practically unchanged during the four months which intervened between the date of notification as tuberculosis and the commencement of antispecific treatment; but after eight weeks of the latter, and although the syphilitic lesions had disappeared and the child's appearance was distinctly better, active tuberculous processes were in progress where inactivity had existed before. Necrosed metacarpal bones had to be removed shortly afterwards and the temperature record had become disquieting. A precisely similar sequence of events was seen in a girl of 14 with unilateral knee-joint disease, undoubtedly tuberculous, and with stigmata of congenital syphilis in the form of Hutchinson teeth and a saddle-shaped nose. The disease in the knee-joint appeared long to have been quiescent before the commencement of antisyphilitic treatment, but neokharsivan injections were followed by focal reactions, swelling, softening, and finally breaking down of joint with involvement of the skin and sinus formation. Repeated occurrences of this kind make it difficult to escape from the suggestion that in some cases at least—and perhaps most of all those in which a more or less latent spirochætal infection is present—a syphilitic affection may react favourably on a coexisting tuberculous one, and that the removal or modification of the former by antispecific measures may lead to, or favour, an activation of the tuberculosis. It is impossible, in the absence of histo-pathological data and of any certainty as to the physiological processes initiated by 606, to do more than suggest possible explanations of the phenomena so frequently found to occur, but such suggestions may be of value in so far as they form a basis for future investigation. The direct action on the tissues of the drugs concerned, or the physiological reaction precipitated by their administration, may be responsible factors; but it seems more probable that the true explanation may be found in the condition of the tissues which are exposed to the action, chemical or physiological, of the drugs. It has been found—e.g., in glandular disease—that syphilitic and tuberculous tissues may be intimately intermingled, and it may be that general and focal reactions, and subsequent aggravation of the tuberculosis, are to be explained by the resolution of syphilitic tissue immediately adjacent to tuberculous tissue, the vascular and fixed tissue reactions which occur permitting of ready extension and aggression on the part of the tuberculosis. Absence of reaction might therefore be due either to an entire dissociation of syphilitic and tuberculous tissues, the latter being quite unaffected, or to the existence of a densely fibrotic condition on which no drug can be expected to exert any influence whatever. It would therefore follow that, while syphilis of the lungs as an isolated disease is extremely rare, pulmonary syphilis and pulmonary tuberculosis might be associated in the same patient much more commonly. The reaction following salvarsan would then depend on the condition of the tissues. Should the syphilitic lesion be entirely fibrotic, 606 would lead to little if any focal reaction, and no stimulation of the tuberculosis into greater activity would occur; whereas, if definite absorptive processes followed the injection of the drug, tubercle bacilli might be liberated in great numbers and thus precipitate a serious and even rapidly fatal extension of the tuberculosis.

It is to be emphasised that at Robroyston there was seen in no case anything like the striking improvements recorded by certain writers. For example, Hartley[11] treated with salvarsan 16 patients suffering from pulmonary tuberculosis, and states that in these pyrexia, which had previously resisted all therapeutic measures, yielded rapidly to the drug. This experience is directly at variance with that of the present series of cases, in which pyrexia tended to appear or to increase after the injections were given, and this resulted no matter whether neokharsivan, novarsenobillon, or sulfarsenol was used. The mode of administration appeared to have no influence whatever. Case 1, for instance, was treated intramuscularly by neokharsivan in creocamph, Case 2 by N.A.B. intravenously, and Case 3 by sulfarsenol subcutaneously.

Stopford Taylor[12] describes two cases of lupus—the first consisting of multiple ulcers of the right arm and the other of ulcerating lupus of the face—which responded beautifully to neokharsivan injections. In the first the result was "nothing short of marvellous," which would seem to point to the lesions having been syphilitic in origin, while in the second a speedy change for the better took place after three injections. There is little doubt that distinct focal reactions in tuberculous lesions take place after the injection of organic arsenic, and it is conceivable that, as is the case in tuberculin treatment, the focal reaction may be productive of some good in cases where the lesion is on a free surface, such as the skin, where it can be carefully watched; but too little is known of such reactions, and they have been treacherous too often, to permit of their general application.

In 1911 Herxheimer and Altmann[13] reported a series of cases the results in which receive confirmation from those of the present series. Their cases all showed the same reaction—i.e., any obvious luetic lesions which were present healed under salvarsan therapy, while latent tuberculosis flared up. Wechelmann[14] collected from the literature ten cases of associated syphilis and tuberculosis treated by salvarsan, in all of which death occurred and was attributed by Wechelmann to the exhibition of the drug. Elliott[7] describes 12 cases, supposedly tuberculous, in which various preparations of organic arsenic were administered. In eight of these the result was unsatisfactory; the ninth, lupus involving the chin and the left hand, showed a very marked focal reaction after the injections, but does not appear to have been followed up. The remaining three responded beautifully to the treatment, the general condition showing a marked and rapid improvement and the physical signs clearing up. The diagnosis in these cases was consequently changed to syphilis.

Conclusions.

1. From a consideration of limited data the incidence of a positive W.R. has not been found to be more frequent among the tuberculous than among the general population.

2. Syphilis of the lungs existing as an isolated disease is extremely rare, but it may be that a number of cases recognised as pulmonary tuberculosis and in which the W.R. is positive are in reality cases of combined syphilis and tuberculosis of the lungs.

3. The two diseases when coexistent in the same individual may modify each other.

4. In cases in which syphilis and tuberculosis are present in the same individual, the administration of 606 and its analogues may be followed by disaster. If organic arsenic is used, it should be administered in extremely small doses and at wide intervals. If no disturbance follows the injections, treatment may be continued cautiously, but it should be at least temporarily suspended if focal or general reactions occur and the condition carefully watched.

5. Organic arsenic compounds may be useful in cases in which the diagnosis is doubtful, but it is

unjustifiable to employ them for diagnostic purposes save with extreme care, and always having in mind the possibility of a tuberculous flare up.

I have to make the following acknowledgments: To Dr. John Watson, medical superintendent, Robroyston Sanatorium, for permission to use this material; to Dr. R. M. Buchanan, city bacteriologist, Glasgow, who, in the interests of uniformity, arranged to have the actual blood tests carried out; and to Dr. J. L. Brownlie, of the Public Health Bacteriological Department, Glasgow, by whose labour and kindness the reactions were actually ascertained.

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INTRACRANIAL BIRTH INJURIES.[1]

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IN attempting to deal with the after-history of such infants as survive, let me say that I fully appreciate the difficulties with which I am surrounded. On one side lies all that careful work carried out by our obstetric colleagues, beginning with the exhaustive and patient investigations of Dr. Herbert Spencer, the record of which is tucked away so securely in an old volume of the Obstetrical Transactions that some of us seem to have a difficulty in finding the reference, and ending with the important work which has just been recorded. In other countries, and especially in Germany and the United States, the output of work has been even greater, all of it going to show the frequency of intracranial hæmorrhage in infants born dead or moribund.

Ætiology: Conflicting Views.

The belief that infants surviving this kind of trauma at birth lived to form some part of the total of cases of cerebral diplegia has, in the past, been very generally held. Such was the view for which Little himself pleaded, and since his day it has received the support of Gowers, Osler, and many others. But upon the other side lies another series of researches to which equal attention must be paid. I do not think I am overstating the case if I say that at the present day neurological opinion is averse from the view that intracranial hæmorrhage at birth is responsible for any considerable part of the cerebral diplegia which presents itself in later childhood. Such, I think, was the view which Dr. J. Collier expressed the other day in his presidential address at the Neurological Section of the Royal Society of Medicine,[2] and he there summarised the extensive literature which supports his own observations, that autopsies conducted upon children who have shown during life evidence of cerebral diplegia reveal a condition compatible only with the assumption that the cause was to be found in primary errors of development. The findings of obstetricians and neurologists are, to that extent, opposed and at first sight seem capable of being reconciled readily and completely by one assumption only, that all infants with intracranial hæmorrhage die at birth or in infancy, so that the neurologist whose post-mortem and histological examinations are carried out upon older children is confronted only with those in whom the diplegia is the result of encephalitis or due to developmental defect. Such a view has been advanced. One patient observer (Kowitz), as a result of the study of 6000 autopsies, maintains that the cases of meningeal hæmorrhage occurring at birth are gradually eliminated by death before the end of the third year of life.

If, therefore, I state at the outset that my work among infants and children makes it impossible for me to discard the belief that Little was right in his contention that there exists a certain group of cases of diplegia, recognisable by what he calls "considerable pathological resemblances in intellectual character and physiognomical expression," as well as by a degree of spastic rigidity, which owe their defect to intracranial hæmorrhage at birth, I am confronted at once with the difficulty of producing the necessary pathological proof. Only in one respect is the position changed since Little's day. It was to ask for the production of this pathological evidence that Little, whose interests were largely orthopædic, had himself introduced as a guest at a meeting of the Obstetric Society and gave that clear account of the disorder which he believed to be the result of asphyxia at birth. To-day an immense obstetric literature upon the subject, recently summarised with great clearness in an important work by Ehrenfest, provides in part the answer to Little's request. We now know not only the varieties of intracranial hæmorrhage which may be caused at birth, but we have a clear conception of the immediate symptoms which result in the first days of life.

Symptomatology of Intracranial Hæmorrhage.

The immediate symptoms of large subdural hæmatoma above or below the tentorium or in both situations are well known. In the tense bulging fontanelle there is clear evidence of increased intracranial tension. If pressure upon the fontanelle is made, respiratory distress, screaming, or even convulsions may follow. The cerebro-spinal fluid is often under greatly increased pressure and in most cases contains blood. If the examination is made a day or two after birth there may be evidence of altered blood, staining of the cerebro-spinal fluid, degenerated erythrocytes, &c. The ophthalmoscope has now entered the lying-in chamber, and it is said that 60 per cent. of the cases show retinal hæmorrhages and that œdema of the disc may appear. Inequality of the pupils, squinting, and nystagmus are common. The infants, as a rule, exhibit extreme restlessness and constant screaming, or there may be stupor and immobility. The increased tone of the muscles is very striking in most cases. There may be generalised rigidity with opisthotonos, trismus, clonic twitchings of individual muscles or groups of muscles, or generalised convulsions. If any part is stimulated with a slight flick, a characteristic violent twitch of the whole body results. But that which indicates most clearly the serious state is the impairment of the two reflexes vital to the child, the sucking reflex and the breathing reflex. The breathing may be slow and stertorous, or it may be rapid and shallow, or there may be ominous pauses in which the pulse continues to beat strongly. Some degree of asphyxia is the rule in all severe cases. Suction is not only poor and clumsy, as happens in many feeble, or premature, or excited, or mentally deficient infants, but the reflex is entirely absent. Pressure upon the dorsum of the tongue fails to produce the usual suction response.

I will not elaborate the picture further or describe the attempts which have been made to separate the symptomatology of supratentorial bleeding from that of infratentorial, or deal with the symptoms of localising value by which it is hoped more and more to bring surgical help to our aid. My own experience at this stage is small, so small that you may wonder that I should adduce it. Still, small as it is it serves to illustrate the first of the reasons upon which I believe the uncertainty of our knowledge depends. The obstetrician deals only with the beginning, the neurologist only with the end. For the intervening period we must rely upon the general practitioner and the pædiatrician. I find that I have been asked to see in all eight infants who I thought were suffering from intracranial hæmorrhage. All of these infants died. All showed more or less completely the symptoms I have just described. In three I was able to verify the diagnosis post mortem. The other five were seen in private practice and no post mortem was obtainable. Now it is my experience, and I do not suppose that I am singular in this, that when I am called to see a new-born infant, it is generally because its condition has aroused the fear, if not the expectation, of immediate death. All of these infants were moribund. That there are others suffering similarly but less severely I cannot doubt. Their condition may not arouse the fear of immediate death, although there may be a vague anxiety felt. The mother may be made aware that the doctor or nurse does not think highly of the chance of ultimate survival, but no routine examination is made and the child's recovery is put to the test of time.

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[1] A contribution to a discussion held at the Medical Society of London on Dec. 10th, 1923.

[2] THE LANCET, 1923, ii., 1129.

Skilled Routine Examination.

The need for a skilled routine examination of the new-born to detect evidence of the presence of intracranial hæmorrhage in any infant whose well-being is in the least in doubt appears to me to be the first and most important deduction to be made from the work which Mr. Eardley Holland has put before us. The certainty with which in general practice the minor degrees of such conditions as pyloric stenosis or scurvy are recognised to-day, and the rarity with which they were detected save in their most pronounced form 20 years ago, suggests the possibility that the attention of the profession has only to be aroused to bring to light many cases of slighter intracranial hæmorrhage. Further, it seems to me to follow that since intracranial hæmorrhage occurs especially in the premature and feeble child we must be careful in adducing the degree of prematurity or feebleness as itself a sufficient explanation of the failure to suck, or of asphyxia or of somnolence. Mere unripeness is in common experience compatible with a high degree of vitality. Death from prematurity or congenital feebleness may be due as often to trauma as to deficient development.

Lastly, in tracing back the history of those cases which we believe to be examples of Little's group of diplegia, it seems to me that it becomes of importance, now that we know the symptoms of intracranial hæmorrhage occurring at birth with some accuracy, to inquire specifically as to the presence of these symptoms. I see little that is to influence our judgment from inquiry as to the nature of the labour. We know that many are born after a difficult and protracted labour, that many are born after precipitate labour, and that many are born after a labour that is in no way abnormal. But a history of constant screaming or of stupor, of aphonia, of refusal to suck, of rigidity, of convulsions, of asphyxia, of facial or oculo-motor paresis or twitching seems to me to have more definite significance. It is clear that after a long interval symptoms which were not specially searched for at the time and which were since the infant survived of slight degree will often be forgotten. Of 63 cases which seemed to me to be examples of Little's syndrome the mother had retained a recollection of asphyxia in 27, of constant screaming in 7, stupor in 4, of aphonia in 3, of refusal to suck in 8. In many there had been anxiety as to survival for the first few days of life. These figures are suggestive. Nevertheless, the difficulties arising from the want of examination of the newly-born in general render such inquiries barren and uncertain.

A Typical Example.

To illustrate this let me recount the case of T. S., an example of the condition I believe to be typical of the after-effects of intracranial hæmorrhage at birth. He came under my care when 12 months old because his mother was distressed by his failure to grasp and to stand. He could sit up only with difficulty. When held upright he made attempts as though to walk, but the legs were then rigidly extended and the adductor spasm was extreme. The hands were stiff and clumsy. He could not pick up anything, but he had learned stiffly and incoördinately to bring his two hands into apposition and he took great and obvious delight in this manœuvre. This represents a stage which the normal child will often reach in the fifth month. The face was stiff, the smile reflex like that of a young infant, and he was a great dribbler. But what struck me most about him was the shape of the head. I do not know the mechanism or the precise significance, but a certain proportion of these babies in early infancy have a strikingly asymmetrical head. Extreme overlapping of one parietal bone over the other has often been noted at birth as indicative of intracranial hæmatoma or extensive tentorial tear resulting in undue mobility of brain. Seen later these children have heads which recall the shape of the Bass Rock. I have here a plaster cast of this child's head taken at a year old. At the present time the child is 2 years old and has made great progress. The head asymmetry is hardly noticeable. He can walk, though with the usual stiffness and rigidity, for a few steps. He still prefers to hold on to the furniture. The hands are still stiff and expressionless. He is bright and intelligent, says a few baby words, and is constantly practising consonant sounds.

Now this child, among the most typical of my cases, happened to be born in a hospital in London, and a few days ago, for the purpose of this discussion, I wrote and asked for two kinds of information. I asked for particulars of the labour and I asked for particulars of the child's condition during the first fortnight. Of the first I received, as I knew I should, the most detailed evidence; of the second, as I feared I should, little of value. The labour was conducted under morphine and hyoscine. In all four doses of hyoscine were given. The conjugate diameter of the mother's pelvis was contracted to four inches. The times of the various stages of labour were recorded with a note upon the condition of the pulse and of the urine passed during labour, &c. One gets the evidence of watchful and skilful conduct and control. But the notes on the child are unsatisfactory. It was born in a condition of blue asphyxia. The caput was very large and was "red and congested in appearance." The posterior parietal bone was depressed below the other. The child weighed 8 lb. 4 oz. Three days later its weight had fallen to 7 lb. 9 oz.

Now, although this child presented one of the classical signs of tentorial tear, no notes of its condition are hereafter available except for some statements as to the colour of its stool. In studying infants observations upon the colour of their stools are too apt to be proffered as a substitute for a routine physical examination. The mother of this child, which left the hospital on the twelfth day, brought the infant back on several occasions complaining of the ceaseless crying and absolute sleeplessness, which she connected in some way with the peculiar shape of the head. She was, however, always reassured. It is the study of cases such as this which makes it impossible for me to discard the belief that Little was right in his contention. I quote it because it shows well the difficulties at present of gaining information as to the state of the child at, or shortly after, birth. An examination of the cerebrospinal fluid or with the ophthalmoscope would have afforded the crucial test.

The Latent Period Following on Recovery from the Immediate Symptoms.

The first of the difficulties, then, with which one has to contend, is the want of systematic examination of the new-born which makes it difficult to detect the occurrence of a hæmorrhage which, while compatible with life, may yet give rise to after-effects. The second difficulty is the long latent period which ensues before these after-effects are commonly appreciated. A consideration of the order in which the different parts of the brain are developed explains the length of the interval which must elapse between birth and the time when the child is taken to a doctor and complaint is made of failure to sit, to stand, to grasp, or to speak. Physiologically the brain of the new-born is active only in part. It is composed almost entirely of grey matter. The medullation of the nerve processes of the cells has not yet been accomplished. Only those processes are medullated which are of immediate and vital importance to the newly-born and which are necessary for the functions of respiration, suction, and circulation. On the other hand, the paths which render possible complicated and controlled motor action and equipoise of the body are not developed. It is the single task of the human infant during the first year of life to develop that marvellous precision and control of complex movement, and to refine more and more those tactile, muscular, and stereognostic senses which are given to man as they are given to no other creature, and to which he owes his survival and supremacy. In the success which attends the infant's strivings we find the earliest indications of his intellectual quality. Darwin's infant steadied his bottle with his right hand at the third month. Others in no way mentally defective are yet less quick to learn. The variation within the normal are great. Unless observation in the home is unusually skilled it may well be that a year or more has elapsed before the backwardness is appreciated. Examination may then show clear evidence of the delay in the assumption by the cortex of control over the voluntary movements. The spastic incoördinate movements may be those characteristic of the normal development at a much younger age. Only when the hæmorrhage has affected those vital medullary reflexes which are active from the first is the child brought sooner. In every instance in which I believe I have been able to recognise cerebral diplegia in the early months of life the child was brought not for spasticity of limbs, but for clumsiness or inability to suck, for aphonia, or for respiratory difficulties, such as stertor and dyspnœa. Such cases are not common and it is clear that apart from the high mortality which is likely to be the immediate result of medullary damage, their survival even to the end of the period of infancy is doubtful. In cases of Little's syndrome without evidence of medullary damage apprehension is often not felt until the beginning of the second year.

The Ultimate Effect upon the Child.

The name Little's disease is only properly applied to two groups of cases and to two only: first, to cases of paraplegic rigidity without mental defect and without convulsions, and secondly, and perhaps more strictly, to cases of general rigidity, usually without convulsions and without mental symptoms or with only that degree of backwardness which is accounted for by delay in that process of auto-education which proceeds by grasp and touch in every child.

Of the first group the paraplegic, which is by no means small and which especially appears to follow premature birth, it may be said at once that no question of mental defect arises. Walking is delayed and for a time their gait is spastic and defective, but of their ability there is commonly no doubt. Their treatment is generally orthopædic. I have elsewhere discussed the question as to whether or not Lord Byron's lameness was so caused. In more than one such case I think close observation in early infancy has shown me that the development of the hand movements was also slightly delayed. It is, however, only when the hand is rendered stiff, and immobile, and anæsthetic that an appreciable delay in the mental development of the child results. As Madame Montessori has so clearly shown, the chief part of infantile education proceeds by the development of the sensori motor paths. In all its efforts the infant must recapitulate the story of its race and gain control over the wonderful instrument, the human hand. In this process of auto-education the diplegic infant, with an antenna relatively immobile and insensitive, lags far behind the normal child. When in addition the face is stiff and immobile, when speech is long impossible, when the laugh and the cry are expressionless and not charged with emotion the simulation of gross idiocy or imbecility is close. Yet the children are not idiotic. Their backwardness is due to sense deprivation. In a sense their defect is the opposite of that encountered in children who are both blind and deaf. Their visual and auditory memories are good. Every avenue to the brain which was closed to Helen Keller or to Laura Bridgemann is open to them, but the single path by which so great a mental development was achieved in their case, that of touch, is here gravely obstructed. A close observation of these diplegic children will often afford convincing proof of the activity of the brain in spite of the expressionless face and immobile, helpless limbs. One of my little patients at the age of 3 could not speak, but he could hum tunes, and he made use of his gift of song to make his wants felt. Thus when he wanted his toy soldiers he hummed the tune of "Onward Christian Soldiers." He now often speaks of what happened to him "before I could talk." In early childhood his parents were told by several medical men that he was seriously mentally defective and would always remain so. He is now a schoolboy of more than average intelligence, gifted especially in mathematics, stiff and a little tremulous in his movements, a villainous writer, fond of games but very bad at them.

Degree of Mental Deficiency.

It is in general only in early childhood that the fears of gross mental defect are aroused. Later after a varying delay the cortical control over the voluntary movements is established more of less effectively and rapid progress is achieved, while education by means of ear and eye proceeds unchecked. In a few cases with microcephaly or with convulsions permanent immobility remains, but even in the worst the intelligence is always much greater than would appear from a cursory examination. In many the ultimate result compared with the initial backwardness in achieving voluntary control of movement is surprisingly good. Memory, artistic perception, æsthetic sense, imagination, and character may all be on a high plane. At the worst the personality is not debased as in primary mental defect. After all the idiot is known by what it does, these children only by what they cannot do. In general they have the saving grace that they try. The actions of the idiot are apt to be purposeless and inconclusive, the child with diplegia from birth trauma struggles and overcomes. Now I may be wrong, but I think that the material upon which most post-mortem neurological investigations have been made does not include such cases. Children so affected are seldom to be found among the inmates of institutions for mentally deficient children. They are to be found in the homes of the people, a little stiff and awkward in their movements, sensitive, retiring, self-conscious, a little odd to look at, and peculiar in temper. Most of the older children who have been brought to me have been under treatment by an orthopædic surgeon; few of them have been taken for advice as to their mental condition. It is characteristic, I think, that the name by which we know the condition commemorates the founder of the Orthopædic Hospital. Their gait may be faulty, those who know them well are in no doubt as to the acuteness of their reasoning powers. I suggest that the neurological studies of which I spoke and which are held to prove the negligible part which trauma at birth plays in the causation of cerebral diplegia are concerned with material derived from very different sources.

The use of the term Little's disease has been extended unjustifiably to include all cases of diplegia, and in the past attempts have been made to trace the origin of gross mental deficiency with spasticity and epilepsy to intra-natal trauma. The failure of all such attempts must not deter us from the endeavour to trace far more clearly than is possible at present the after-history of infants who suffer intracranial hæmorrhage at birth and survive.

That this accident does not always produce permanent damage is certain. Cases in which hæmorrhage occurred have been followed for many years, and the children have thrived normally. That other types of disturbance may owe their origin to intracranial hæmorrhage is possible. That this particular type in which the sensori-motor defect is the only defect, or the predominant defect, does owe its origin to intracranial hæmorrhage seems to me certain.

Another Case.

I show as a typical example of extreme generalised rigidity from cerebral birth injury a boy aged 16. His birth was very difficult. His doctor tells me it was the most difficult forceps case he ever had. There was bilateral subconjunctival hæmorrhage. He was born asphyxiated and subsequent alarming asphyxial attacks recurred during the first week. He screamed incessantly. He was christened at once, in fear that he would not survive. He has been sent to a school for mentally deficient children. There he has learned very little. He can read about as well as a child of 7. His writing and his figures are almost illegible. What he has learned he has learned from his devoted mother. She is not an intellectual woman, and the intellectual development which I have seen in other boys similarly affected in intellectual homes has not been achieved. But he holds his own in the family life. He is affectionate, honourable, well-behaved, and his father and mother are devoted to him. This scholar from the school for mental defectives plays a first-rate hand of whist and he makes himself very useful in housework of all sorts and in cooking. He can control his stiff, awkward limbs in a wonderful way during certain practised actions. Versatility is not for him. But, like a juggler, by long effort he succeeds.

PELLAGRA IN THE BRITISH ISLANDS.

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THE rarity of pellagra in this country is not surprising considering the conditions which appear to favour its onset, but the disease is endemic in England, and isolated cases are noted from time to time. That more cases are not recorded must in part be due to the difficulty of diagnosis and to the superficial resemblance of this condition to other well-known physiological and pathological states. Even during epidemics of pellagra in other countries many cases would be overlooked were it not for the presence of so many typical cases at the same time; hence the problem for the medical man who has never seen a case before is much more difficult. A study of the literature suggests that many cases occur without being diagnosed. In 1913 great interest was taken in the disease, and many medical men in England reported cases in the more widely read journals. Before and since that date the records reveal merely isolated instances of the condition, and it is practically certain that in 1913 there were many cases simply because they were looked for and that the falling-off in the numbers since corresponds to the failing interest of medical practitioners. It is hoped that a brief summary of the cases occurring in this country may do something to re-awaken that interest without which, even in typical cases, a diagnosis is almost impossible.

In October, 1912—just 11 years ago—Sambon and Chalmers,[1] writing under the same title as the present, described the first cases in this country. It appears that Billod,[2] in 1860, received a letter from the Inspector-General of the Scottish Lunatic Asylums to the effect that he had seen two idiot brothers in an asylum in the east of Scotland, both showing manifestations of pellagra. These constitute the first cases in our literature. In 1866 Howden[3] described the disease in a woman in the Montrose Royal Asylum. No further cases are noted until 1906, when Cassels Brown[4] published a case in Rock Ferry, Cheshire. (From careful consideration of the appearances described I do not think that this was true pellagra.) The next record is in 1909, when Dods Brown and Cranston Low[5] diagnosed a typical female pellagrin in the Royal Edinburgh Asylum. So many cases, relatively, having appeared in Scotland it seemed to Sambon and Chalmers[1] that a trip to this part of the country might reveal yet more cases. Accordingly, in 1912, these workers proceeded north and, as had been anticipated, several more pellagrins were diagnosed.

The publication by Box[6] in 1913 of his two cases in brothers living in Slough seems to have stirred up the greatest interest in the disease, and this, together with the work of Sambon, gave rise to a flood, relatively speaking, of new cases. These can be best presented in tabular form.

TABLE I.—*Pellagra Cases in the British Islands in 1913.*

Author.	Locality.	No. of cases. M, male; F., female.
Box.[6]	Slough.	2 brothers.
Hammond.[7]	Isle of Wight.*	1 F.
Sambon.[8 9 10]	Lymington (New Forest).	1 M.
	Slough.	1 M.†
	Shropshire.	1 F., aged 7.
	Cardiganshire.	1 F., aged 63.
	Napsbury County Asylum.	1 F. (young).
	Prestwich County Asylum.	1 F., aged 17.
	Walthamstow.	1 F., aged 45.
Cole.[12]	Bethnal House Asylum.	1 F.
Lempriere.[13]	Llanidloes (Glamorgan).	1 F.
Reid and Calwell.[14]	Belfast.	1 M.
Johnstone.[15]	Holloway Sanatorium.	1 F.
Rainsford.[16]	Stewart Institution (Co. Dublin).	1 F.
Spurgin.[17]	London.	1 M.‡

* Probably began in Banffshire.
† A third brother of Box's two cases.
‡ Probably pityriasis rubra.

In the same year (1913) Blandy [11] quotes 11 other cases in the Middlesex County Hospital at Napsbury, one of which had already been described by Sambon.[10] Of these all but one were females. In 1914 only four cases were described. Willcocks[18] mentions a female case living in Waterloo-road, S.E.; Box[19] described a child suffering from pellagra at St. Thomas's Hospital; Little[20] had a case, a male, in St. Mary's Hospital, London, and Ross [21] described a female pellagrin in the Royal Edinburgh Mental Hospital, where a similar case had occurred in 1909. With the coming of the great war interest in pellagra of necessity began to wane, so that in 1915 only two cases are reported, one by Little[22] of a doubtful case in a boy living in Poplar, and a female in Glasgow Royal Mental Hospital, described by Henderson.[23]

A gap in the literature now occurs; not till 1920 was the next case, a female living in Edinburgh, reported by Wood.[24] In 1921 Galbraith [25] published a male case in Glasgow, and in 1922 the author [26] mentions a case in a lady living outside Liverpool. Quite recently Hutchison and Paterson[27] have reported two cases in female children occurring in Great Ormond-street Hospital.

It is clear, therefore, from the above review of the literature that pellagra is endemic in the British Islands. Sight must, however, not be lost of the fact that the disease may become epidemic, especially in asylums. In the Middlesex County Asylum, as already stated, 11 cases occurred in the year 1913, and at the Lancashire County Mental Hospital, Rainhill,[28] during 1922 14 new cases were diagnosed.

Table II. represents mental hospital mortality figures for pellagra in England and Wales for from 1913 to 1922 inclusive, and is of interest in its bearing upon the mortality of the disease in general.

TABLE II.[29]

Year.	M.	F.	Total.	Year.	M.	F.	Total.
1913 ..	0	8	8	1919 ..	0	0	0
1914 ..	0	1	1	1920 ..	0	2	2
1915 ..	3	12	15	1921 ..	0	1	1
1916 ..	2	6	8	1922 ..	3	15	18
1917 ..	0	9	9				
1918 ..	1	3	4	Total .	9	57	66*

* Of these 66 deaths 86·4 per cent. were in women.

Most of the cases were in Lancashire, many of them in one mental hospital. Cases also occurred in the East Riding of Yorkshire, Norfolk, Hertfordshire, Monmouth, and London.

From consideration of the preceding figures it will be seen that the Liverpool district is especially an endemic focus of pellagra, since this is the area mostly concerned in supplying cases to the mental hospital at Rainhill; in some instances these cases are pellagrous before admission. It is surprising that more cases of the disease are not noted in this district. The publishing of the following notes of a new case in Liverpool may, perhaps, stimulate local interest in the disease.

A male, aged 59, a painter now out of work, was sent to me by Dr. Edmund Hughes, of Liverpool, in June, 1923, as a possible case of pellagra.

History.—About March, 1923, patient began to be ill, giddiness being the first symptom noticed. In April his memory began to fail and he became mentally confused. Very shortly after this the backs of the hands became red and burning, and this was followed by a brown coloration. He volunteered the statement that he had suffered from diarrhœa, which lasted a few weeks. There had been no soreness of the tongue and no pain in the back; appetite had been good and he thought he had not lost weight. He had had no previous attacks of a similar nature and had seen nobody with hands like his. Apparently he had never lived abroad. His diet he described as follows: Breakfast: An egg beaten up in tea, salt fish, bread and butter. Dinner: Hot pot, or something like it. Tea at 7 o'clock: Fish, bread and butter, and tea. Supper: Bread and cheese.

On further inquiry it was elicited that the man lived all alone in rooms and that he had to prepare his own meals. He admitted that he probably went without any food at all on many occasions. The fact, too, that the man is out of work suggests that the diet was in reality inadequate.

Condition on Admission.—On the 26th, when admitted to the David Lewis Northern Hospital under my care, he appeared to be prematurely aged and very confused, with very deficient memory. Typical symmetrical pellagrous erythema with pigmentation on the dorsum of both hands, the skin was swollen, dry, and scaly. No signs of dermatitis in other areas. Tongue normal; pupils equal, reacting to light and accommodation; knee-jerks exaggerated but equal; no clonus and no Babinski. Other systems revealed nothing of note. There was no diarrhœa during the man's stay in hospital.

Laboratory Investigations.—Blood-sugar, 0·08 per cent.; blood-urea, 12 mg. per 100 c.cm. Fractional test-meal revealed complete absence of HCl in all samples. Fæces and urine showed nothing abnormal. Wassermann reaction completely negative; spinal fluid gave only a luetic zone curve with the gold sol test (1233211000).

Treatment.—The treatment given was practically entirely dietetic. A liberal mixed diet was ordered, to which were added six eggs per diem. With these simple measures the dermatitis on the hands soon cleared up by desquamation and pealing, leaving a smooth pale skin surface. The patient's general condition improved and his mind became decidedly less confused. Notwithstanding the vigorous feeding a gain in weight of only half a pound was recorded. The patient was discharged from hospital on July 30th, 1923.

It would appear that the ætiology in this case was intimately associated with poor feeding, and that simple correction of this error brought about rapid amelioration of the symptoms for the time being. Whether next spring will show a recrudescence of the condition probably will depend upon the man's diet during the coming winter.

In conclusion, I think that particular note should be taken of the colloidal gold test on the spinal fluid in pellagra cases. Four cases have been examined in this respect; three of these fluids were sent from the County Mental Hospital, Rainhill, by the kindness of Dr. G. A. Watson, and the fourth is from the present case. One case gave the serological findings of a typical general paralysis, which was in accord with the clinical findings. The other three had fluids perfectly normal in every respect except that the colloidal gold test gave a luetic zone curve in each. This finding, in the absence of disseminated sclerosis, may be of value as a diagnostic feature in pellagra.

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LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner was held at the Savoy Hotel, London, on Dec. 6th, Sir Alan Anderson presiding. Over 300 past and present students were present, and the guests included, among others, Lord Riddell, Lady Rhondda, Sir Humphry Rolleston, Sir Walter Schröder, Miss Elizabeth Robins, Mr. V. Warren Low, and Mr. Ernest Miles. After the loyal toasts, the chairman proposed the School and Hospital. He chronicled with sorrow the death of Dr. Percy Saunders and the approaching retirement from the department of pharmacology of Dr. Fred Ransom, and then discussed in a hopeful spirit the present position and the future of the institutions to which both of these men had given valued service. At the present time neither the school nor the hospital were paying their way. The hospital was in the same difficulties as all other metropolitan hospitals, but steps were being taken to enable it to meet its charitable obligations. As to the school, it was a volatile body which had recovered from bad times after the Boer War, when the entry sank to 13, and would doubtless recover again, though this year's entry of 36 was less than half that of a few years ago, when its buildings had been greatly enlarged to meet the demand for more space. The hospital was unique among teaching hospitals in that appointments on the honorary staff were available for women graduates. Nine beds had been endowed during the last year, and £16,500 had been received for the extension of the hospital, largely through the efforts of Dr. May Thorne, the honorary appeal secretary. The school had an excellent academic and athletic record for the past year. Mr. J. Cunning proposed the Guests in appropriate terms of greeting, and Prof. W. E. Dixon, F.R.S., replied on their behalf in a tone of pleasant banter, accounting for the existence of a women's movement in a delightful exposition of the time-honoured argument that life was now organised "from incubator to incinerator" outside the home. Prof. Louise McIlroy, toasting the Chairman, spoke of the illustrious family to which Sir Alan Anderson belonged, and pictured him as a very perfect knight, ever championing the cause of women.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

THE COMPARATIVE VALUE OF COCAINE SUBSTITUTES.

AT a meeting held on Dec. 7th a discussion took place on this subject. The meeting was arranged by the Section of Laryngology, Dr. H. J. BANKS-DAVIS presiding, and the Sections of Anæsthetics, Odontology, and Otology participated.

Dr. P. WATSON-WILLIAMS (Bristol) said that cocaine was discovered in 1860, and was first used by Keller in 1884 in ophthalmic practice, being thereafter widely used as a surface anæsthetic, and during a long period for injection anæsthesia. Though cocaine had been proved to be valuable in many aspects of medical practice, its toxicity and its abuse by the narco-maniac created a demand for substitutes, as evidenced by the American Committee for the study of toxic effects of local anæsthetics, and the Special Committee of the Ministry of Health. Some of the substitutes now procurable were of great value, and in a measure—i.e., for infiltration anæsthesia and nerve-blocking—had largely displaced cocaine. The repute of most of them, however, was but ephemeral. The ideal local anæsthetic should possess anæsthetic efficiency and lack toxicity in clinical dosage. It should also be capable of sterilisation, readily soluble, non-irritating, and devoid of temptation to the narco-maniac. He asked whether there was yet sufficient evidence that any cocaine substitute was free from the addiction danger; certainly most of the substitutes were highly selective for the cortical centres, and some could cause cerebral excitation. He thought the risk of addiction to cocaine on the part of patients had been exaggerated. The comparative clinical value of cocaine and the other local anæsthetics largely turned on the purpose for which anæsthesia was required; one which was safe for a small operation field might be unsafe for a wider area. Value must be judged according to its employment by (*a*) surface absorption, (*b*) infiltration or nerve-blocking, (*c*) by intra-spinal block. Probably a stronger anæsthetic was required for the nasal mucosa than for the urethra or conjunctiva. Also there might be greater risks in the fauces and tonsils than from the same dosage of the same anæsthetic in the nasal passages.

The Laryngological Standpoint.

Dr. Watson-Williams then proceeded to speak specially of surface anæsthesia in laryngological practice. His experience of eucaine and butyn was limited to their use by surface absorption, and of this alone he spoke. Eucaine he had used since 1902, and later the more soluble eucaine lactate in a 5 to 12 per cent. aqueous solution for rhinological cases. It was fairly efficient for the galvano-cautery, but as it did not produce mucosal ischæmia, adrenalin generally needed to be added. Butyn he had used for nasal anæsthesia in 2 to 5 per cent. aqueous solution. Its action appeared to be exactly similar to that of eucaine lactate, but it was two or three times as strong in the matter of anæsthesia and at least three times as toxic. In the case of all the known substitutes, adrenalin required to be added when vascular constriction was needed. The adrenalin, however, was often followed by a somewhat prolonged secondary turgescence, sometimes by irritation, and coryza lasting two or three days. For these reasons he now restricted his use of eucaine or butyn to such processes as Eustachian catheterisation. He had often used 5 per cent. butyn for nasal sinus exploration. Butyn was quite as toxic as cocaine and less efficient. He suggested to his son, Mr. Eric Watson-Williams, that he should undertake an experimental research from the clinical standpoint on the toxicity of cocaine and its substitutes, and the result of that had already been published.

Statistics of Toxicity.

Dr. A. E. Bulson (Jackson, Mich.) had described his clinical experience of butyn as a surface anæsthetic, and stated his belief that the combination with epinephrin provided a more profound anæsthesia than did butyn alone, and decreased the chances of toxic effects of butyn. Bulson advised a 2 per cent. butyn solution for light anæsthesia, and for major operations a 5 per cent. solution combined with epinephrin was used by first swabbing the operative field, and within two or three minutes applying to the area, and, if possible, over the source of the sensory nerve supply, pledgets of cottonwool soaked with the solution, but with the surplus squeezed out. About ten minutes later he found the patient, in practically all cases, suffered neither pain nor discomfort. Dr. J. F. Biehn (Chicago had furnished to Mr. Eric Watson-Williams notes of five fatal cases from butyn, and recommended that for topical application to the nose the solution of butyn should not exceed 1 per cent. Butyn, like cocaine, novocaine, stovaine in lethal doses caused convulsions and death from respiratory paralysis. Emil Mayer had collected reports to date of 42 deaths following the use of local anasthetics occurring within the last three years—viz., 18 from cocaine, 10 from novocaine and cocaine, 4 from butyn, 4 from apothesin, 3 from procaine and novocaine, and 1 each from stovaine, alypin, and butyn with cocaine. As the substitutes were used far less frequently than cocaine, none of them could be called safe. In relieving the pain of tuberculous ulceration Dr. Watson-Williams had found orthoform and anæsthesin valuable.

In using cocaine it was very important to guard against any being swallowed. For 25 years he had employed, for light anæsthesia and for routine examination, 20 per cent. solutions, spraying 5 to 10 minims without adrenalin, and only very rarely had patients displayed any symptoms of distress due to cocaine. He could only recall three cases of serious faintness following strong cocaine applications; never had he met with a case which seemed to contract the habit. Two important adjuvants lessened the risks attending the use of cocaine in surface anæsthesia —namely, (1) the preliminary or simultaneous use of adrenalin; (2) as De Havilland Hall pointed out in 1888, the addition of a trace of sodium bicarbonate immediately before applying greatly increased the anæsthetising potency of a given strength of cocaine solution. Seeing how general was the use of cocaine in medical work, there were very few cases of either death or narcomania from its employment. Some fatalities were certainly falsely attributed.

The Ophthalmological Standpoint.

Mr. R. FOSTER MOORE said the most important drugs which had been used for local anæsthesia were the following: holocaine, α and β eucaine, euphthalmine, novocaine, anæsthesin, subcutin, antinesin, alypin, stovaine, tropacocaine, butyn. An important question was that of drug addiction, and it would be of value to hear of any cases of this following on the use of local anæsthesia for surgery or as a result of prescriptions. If, without the penalties attaching to cocaine, there were not cases of abuse of the substitutes, that would have weight in favour of the substitutes not being regarded as addictable drugs. For ophthalmic work was there a drug or combination of drugs which was equal or superior to cocaine on the following points? (*a*) degree and rapidity of anæsthesia; (*b*) amount of irritation caused, remembering that some might get into the eye during an operation and cause iritis; (*c*) liability to cause desquamation or corneal epithelium; (*d*) degree of absorption if injection of eye not quite absent; (*e*) toxicity; (*f*) stability and sterilisability by boiling; (*g*) whether it stimulates the sympathetic nerve; (*h*) its liability to become a drug of addiction. He said the chief uses of local anæsthetics in ophthalmic work included instillation anæsthesia, for tonometric examinations, for removal of foreign bodies from conjunctival sac or cornea, cauterisation of the cornea, syringing lacrymal ducts, and indeed all operations on uninflamed eyes, unless the patient was so young as to render a general anæsthetic desirable. For the last group of intra-ocular operations he believed there were a number of cocaine substitutes which were sufficiently efficacious for surface anæsthesia. For infiltration anæsthesia he thought novocaine in 1 or 2 per cent. solution was so efficient and so little toxic that cocaine did not enter into competition with it. Cocaine hydrochlorate was used in solid form for topical application in incising meibomian cysts and in muscle operations, and it would be important to ascertain whether novocaine injections were not equally satisfactory for these purposes. An important quality of cocaine was its power of stimulating sympathetic nerve, producing dilatation of the pupil, and widening of the palpebral fissure; it would be an advantage to know how far other drugs had this effect. He had found holocaine in 2 per cent. solution satisfactory for superficial anæsthesia by instillation, but it caused more smarting than a like strength of cocaine. He had not used it for intra-ocular operations; 2 to 4 per cent. stovaine he regarded as unsatisfactory for cataracts; on two occasions he had had to complete the operation with the aid of cocaine.

The Dental Standpoint.

Mr. F. N. Doubleday spoke from the dental standpoint. He said the British Dental Association recently issued a circular letter to all members asking whether they regarded the use of cocaine as indispensable in their practice. Of 2327 who replied, 1912 said Yes; 410 said No; the other answers were indefinite. He numbered himself with the 410, as he found novocaine, injected hypodermically, produced as rapid an onset of anæsthesia and as profound a loss of sensation as cocaine. As the result of a good deal of testing he firmly believed that novocaine was the most efficient cocaine substitute—i.e., 0·02 g. of novocaine and 0·0005 g. adrenalin. He gave three examples of what this novocaine solution would do. A single injection of 1 c.cm. into the vicinity of the nerve entering the apical foramen of a tooth would, within one minute, so anæsthetise a live sensitive tooth-pulp that it could be painlessly removed; 50 mils injected into the soft tissues on either side of the alveolar process would, within a minute, permit the removal of a tooth, except a mandibular molar, without discomfort; 2 or 3 c.cm. injected into the neighbourhood of the inferior alveolar nerve would produce complete hemianæsthesia of the mandible and allow painless removal of any mandibular tooth of that side. This anæsthesia took from 5 to 30 minutes to develop, according to the skill with which the solution was placed in the region of the inferior dental foramen, and he had done long operations, involving the use of hammer, chisel, and electric engine, with novocaine, and the patients still remained his friends! Most of the other cocaine substances he had named yielded similar results in operations, though with less certainty and with more marked after-effects. He had used novocaine in his hospital practice for 16 years without serious ill-effects, even though the physical condition of many of the patients was poor.

Seen by the General Anæsthetist.

Dr. J. Blomfield, speaking as an anæsthetist, said the use of these drugs in his clinic was confined to injection; he had not employed them for surface anæsthesia. He had entirely abandoned the use of cocaine, and he believed most of his colleagues had also. The drug now almost entirely used for local injection was novocaine, in a 2 per cent. solution. Large amounts of novocaine could apparently be injected without untoward symptoms occurring. That was especially the case when it was injected into the sacral canal. Still, when large amounts were given in this way an alarming series of symptoms were likely to happen, though no fatality from them had yet been recorded—namely, generalised convulsions, affecting nearly all muscles. One such case he saw appeared to be going through a severe epileptic fit. The drug he chose when spinal injections were needed was stovaine. In some of the alleged fatalities from it the drug could not justly be accused of the disasters when all the circumstances were taken into account. However, stovaine was now much less frequently a cause of bad symptoms now it had been found that its chief danger lay in the production of a fall of blood pressure. This could be counteracted by having the patient in the head-down position.

The Otological Standpoint.

Sir William Milligan, speaking as an otologist, said that in view of the ground which had already been covered by previous speakers, he proposed to practically limit his remarks to butyn. Otological work did not permit of the same range of utility for the employment of local anæsthetics as did that of laryngology, rhinology, ophthalmology, and dentistry. This was largely because of the configuration, position, and remote accessibility of the organ. So far, cocaine had practically held the field. Any new anæsthetic must be critically examined from several points of view: (1) Was it as effective as those now in use? (2) Was it reliable? (3) Had it toxic properties, and if so, how did it compare with other local anæsthetics? Butyn could be applied directly to the tissues in either the fluid or the solid form, by subcutaneous injection, or by means of infiltration. In aural work it must be in close contact with the mucosa of the middle-ear cleft; this was accomplished by either swabbing or the local application of small pads of non-absorbent wool soaked in a watery solution of the drug. Thus its use was largely confined to the cases of middle-ear disease in which the tympanic mucosa was exposed. Instilled into the meatus as a preliminary to the removal of polypi or granulation tissue it was as satisfactory as cocaine. Applied to the mucosa of the middle ear or Eustachian tube orifice it produced anæsthesia in from one to two minutes, but not of sufficient degree for the application of a strong caustic. A 1, 2, or 5 per cent. watery solution used every three minutes until four applications had been given caused a more profound anæsthesia, which lasted half an hour. That the drug had no ischæmic effect was not such a disadvantage in aural as in other work, and this defect could be made good by adrenalin. As to any toxic properties of butyn, no patient of his had been in any way inconvenienced by its employment. In any very painful proceeding, such as incision of the drum head, the butyn dissolved in aniline oil enhanced its anæsthetising power. For the production of infiltration anæsthesia a 0·5 per cent. solution gave quite satisfactory results, as the effect was deep and lasting. In aural work butyn did not appear to him to offer any particular advantages in comparison with cocaine; on the other hand, it had certain disadvantages, one of which was its failure to cause contraction of the tissues of an organ like the ear, where there was very little room to work in. Another drawback was the hyperæmia it produced. The advantages he had found from butyn were as follows: Its action was more rapid, more powerful, and of longer duration than that of cocaine, its potency being twice that of the latter. It was not damaged by keeping or by boiling, and it did not engender a "habit"; moreover, it could be used effectively in lower concentrations than could other synthetic anæsthetics. Two of his patients contracted the cocaine habit. In the net result his preference was for cocaine.

Experience with Butyn.

Mr. Eric Watson-Williams (Bristol) confined his remarks to butyn, of which much was being heard at the present time. By the courtesy of Dr. Biehne, of Chicago, representing the proprietors of this substance, he had received important information concerning it. This anæsthetic was selected after numerous trials and experiments with analogues, and since it was put on the market in 1921 there had been a modification of view in regard to its degree of toxicity. Animals with relatively small brains tolerated much larger doses of cocaine than did those with larger brains, and the latter survived larger doses than did man.

Earlier in the trial it had been suggested that in man butyn was less toxic than cocaine, but further experiments on monkeys showed that this view could not be upheld; butyn must be regarded as at least—gramme for gramme—as toxic as cocaine. Bulson advised a 5 per cent. application of butyn for the nose, but that recommendation had since been modified. Mr. Eric Watson-Williams then read, from Dr. Biehn's letter, details of five deaths which had followed the use of butyn. The first was that of a woman aged 35, who had a goitre, and who came for nasal septal resection. She was given morphine 1/6, atropine 1/200 hypodermically. Cocaine was sprayed in the nose, followed by 5 per cent. butyn on tampons. Death, with convulsions, occurred in ten minutes. There was no post-mortem examination. The second was that of a boy aged 16, who came for the same operation, and the anæsthetics were the same, except that the cocaine sprayed was of 1 per cent. strength. He died in 20 minutes, and status lymphaticus was diagnosed. The third was a woman aged 38, who came for removal of tonsils. Morphine 1/8 was given half an hour before operation, and 4 per cent. cocaine was applied on a tampon to the pillars of the fauces and the base of the tongue. Then 2 drachms of 1/4 per cent. butyn was injected into the right tonsil. The left tonsil was similarly treated. Before the operation could be started the patient fainted, then had convulsions, and attempts at resuscitation failed. Death was attributed to paralysis of the respiratory and circulatory centres. The next case, of a man aged 26, came for tonsillectomy. The tonsil was injected with an unknown quantity of butyn solution, prepared by adding 2 drachms of a 5 per cent. solution to 3 oz. of distilled water and 12 drops of epinephrin. After the injection of one tonsil the patient became apprehensive, but was reassured, and then the other tonsil was injected. In a few moments he fainted, passed into convulsions, and died. It was reported as a case from surgical shock; there was no post-mortem. In the last case 40 c.cm. of a 2 per cent. solution was used to produce sacral anæsthesia, and death occurred in ten minutes—obviously a case of overdose. The proprietors stated that they did not recommend butyn solution, particularly when combined with epinephrin, for hypodermic injection in such vascular areas as the tonsil, nor the concentrated solution for the nasal septum. Butyn acted more rapidly than cocaine, was more efficient, and its effects were more prolonged. It should be used in more dilute solutions. Subjects of status lymphaticus showed an idiosyncrasy to butyn. It was reported that butyn had been used in 1 per cent. solution by dentists in over a million cases for extraction without one untoward result. In conclusion, the speaker deprecated drawing conclusions from any but complete case-reports.

Discussion.

Mr. S. F. St. J. Steadman said that in his dental work he usually preferred to inject nerve trunks away from the area of operation rather than doing a submucous infiltration at the actual site of operation; there was then less liability to any complication by sepsis. He had not dared to use cocaine for this, as that drug was decomposed by boiling. He usually employed an isotonic 2 per cent. solution of novocaine, and he was fairly satisfied with this drug, but on one or two occasions it had failed him. He had used a 1 per cent. non-isotonic solution of butyn in 200 cases. In only one did he fail completely to get anæsthesia, and in two the degree was not satisfactory. In the case of the larger trunks of nerves it was usually desirable to wait 15 minutes. The after-pain was much reduced if the Ringer solution was prepared fresh each morning in the manner he detailed. It was not desirable, he found, to use more than 1/600 gr. of adrenalin for each injection or each series. Butyn was responsible for a considerable amount of after-pain, possibly because it was a sulphate and was decomposed by chlorides. A freshly-prepared solution of novocaine gave less after-pain than did nitrous oxide gas.

Dr. William Hill agreed with Dr. Watson-Williams and Sir William Milligan that in competent and experienced hands cocaine was not a dangerous drug. One could test a patient's tolerance by using 2½ per cent. on the nose, and if there were no signs of palpitation of the heart one could safely proceed with it. If such signs did occur, recourse should be had to a general anæsthetic or one of the cocaine substitutes. He remarked that the early reports as to the universal safety of butyn had now been modified as a result of wider experience. He had found butyn an inconvenient drug to use for two reasons: it was not ischæmic, and the necessary addition of adrenalin caused coryza, owing to irritation of one or other turbinal. And sometimes it was uncertain in its action. He seldom had cases of cocaine poisoning. Two other drugs could be used for surface applications: one was eucaine lactate, but the operator was very liable to be "let down" by it. Stovaine was the other; it was soluble in 10 per cent. solution, but only that morning he had a case which proved it was not free from toxic risks.

Dr. Albert A. Gray (Glasgow) spoke of the effect of some of the local anæsthetics on the tympanic membrane. Eucaine with aniline he found very much inferior to cocaine; and the same was true of novocaine and stovaine. And aniline itself had the defect of its virtues; it so easily penetrated epidermis. He had never had a patient who became subject to the cocaine habit; the nearest to that was a man who needed his nose cauterised several times, and he continued to come longer than necessary because of the pleasant after-effects. He (the speaker) never experienced trouble or anxiety in regard to cocaine, perhaps largely because he used it chiefly in the form of an ointment, which did not result in the heart being taken by surprise.

The President related a case in which a man attended often for throat spraying with cocaine, and then met with an accident which prevented the treatment being continued. He then confessed he had kept up his attendances longer than necessary, as he liked the subsequent sensation.

Mr. Woodman spoke of a patient on whom cocaine was first used, and then at a subsequent visit novocaine, and he requested that cocaine be used in future.

Mr. T. B. Layton said the various points in connexion with local anæsthesia struck users in different ways according to their special work. In ophthalmic and rhinological work the important point was the irritative effect of the drug. Sometimes he had injected ½ oz. of 0·5 per cent. novocaine without bad results. He proceeded to speak on the influence on the patient of suggestion. The patient's fear and apprehension were real factors, and they might explain some of the events which had been related in this discussion. And if the doctor was afraid of toxic symptoms when using a new drug, this state of mind was subtly communicated to the patient. Dr. Graham Brown, of Melbourne, would not use novocaine; he always employed cocaine, and was careful to have the same brand as that so largely used by dental surgeons. In the nose local anæsthesia was closely concerned with hæmostasis, and butyn did not cause hæmostasis. He used 1 per cent. novocaine with adrenalin for injecting tonsils. He had put that into one tonsil of a patient, and into his other tonsil 0·5 butyn with four times as much adrenalin as in the other, and the amount of hæmostasis during the operation on the two sides was not to be compared. It was necessary to go on adding adrenalin until the quantity was quite considerable. He believed there was somewhat more danger of reactionary hæmorrhage with local than with general anæsthesia, certainly in the case of the tonsils.

Mr. Mark Hovell said that for some time past he had discontinued using cocaine for nasal work, employing eucaine in its stead when local anæsthesia was required, of 5 per cent. to 10 per cent. strength. To clear the nostril of polypi he used 2 per cent. novocaine.

Dr. J. KERR LOVE said he had used alypin. Some years ago he tried that in 10 per cent. solution for surface application in the nose, and after using it about 20 times he concluded it was much more toxic than was cocaine of the same strength. He therefore gave it up. Before using cocaine he gave the patient a hypodermic injection of hyoscine compound (B. W. & Co. " A ") 20 minutes before the operation, and he had found that was a very safe antidote for symptoms of incipient cocaine poisoning; as also was a 10 per cent. solution of calcium chloride injected intravenously.

Mr. SYDNEY SCOTT said he had found butyn useful for patients who had disagreeable after-symptoms from cocaine. He had never seen or heard of a case of addiction to the cocaine habit following its use for surgical purposes. He had never done a mastoid operation under local anæsthesia, but he had removed a brain abscess under novocaine. The patient was unconscious, and was with difficulty aroused subsequently. There was some reflex action when the cranium was opened, but he was able to find a deep-seated abscess and enucleate it from the parietal region under local anæsthesia with help derived from the fact that the patient was partly comatose. Sometimes the application of a little pure carbolic acid with Condy's fluid to the operation area enabled a patient to tolerate incision of the tympanic membrane. As long as 25 years ago students at St. Bartholomew's Hospital were taught that it was very dangerous to spray the nose with cocaine. The great precaution to observe was against the swallowing of cocaine by the patient, which could be done by having the head leaning forwards. Following novocaine and adrenalin there was some liability to cramp in the heart region, probably due more to the adrenalin than to the novocaine. He had used a 5 per cent. isotonic solution of butyn in the same way as he had used cocaine, chiefly for Eustachian catheterisation, and he could confirm the conclusions recently set out by Dr. William Hill.

Mr. HERBERT TILLEY said he had used novocaine frequently for resection of the nasal septum and for operating on the antrum. It was very efficient and he had never seen the slightest danger from it, nor even uncomfortable symptoms. He had also used it 15 times for urgent tracheotomy in cases in which a general anæsthetic was not only impossible, but would probably precipitate disaster. He had been struck by the comparatively large quantity of novocaine which could be used without any apparent distress. He agreed with those who felt that we did not yet possess a drug which produced the combined qualities of anæsthesia with contraction and retraction of the tissues. And if a drug did not possess ischæmic properties, he did not see how it could take the place of cocaine in ordinary practice. For 15 years he had not seen a case in his consulting room which gave either him or the patient any anxiety. He fully agreed with Mr. Layton's remarks on the influence of suggestion.

Reply.

Dr. P. WATSON-WILLIAMS, in reply, said Mr. Eric Watson-Williams found that cocaine became rapidly changed in the body into ecgonine, the harmless base. His own experience with novocaine had always been happy when used for injection purposes. He thought the profession had got into the wrong mental attitude in regard to cocaine. If a better substance could be found it would be welcomed, but it was a pity to make an attempt to black-list it as something to be avoided if possible because it was socially abused at a time when it was available for anyone. This was the wrong standpoint for scientists. There were those who would like to prohibit the use of alcohol by the profession in the same way.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

AT a meeting of this section on Nov. 29th, Dr. C. W. BUCKLEY delivered as his Presidential Address an introductory paper to a discussion on the subject of

DIURESIS.

He said that members of the section employed therapeutic remedies which differed in many respects from those in the Pharmacopœia and had not received proper attention from the teachers of pharmacology. The gross effects of mineral-water drinking were obvious, but how and why these effects were produced was often obscure. When mineral waters were employed to produce diuresis, the aim of the physician was to promote the excretion of harmful solids, the result of a disordered metabolism, rather than the mere excretion of water. For this purpose certain mineral waters of low concentration were superior to distilled water; and the effects of the former were often prolonged, while those of the latter passed off rapidly. Marshall and Carr, who had investigated the effect of plain water drinking, concluded that the excretion of chloride and of urea was increased, while creatinin was little affected. The results of these investigations were somewhat vitiated by the fact that no fluid was allowed during the control period, so that the control results were hardly normal, and further by the fact that the degree of hardness of the water drunk was not stated. The latter was a point of some importance, since it was known from the experiments of Keller that hard water possessed a greater diuretic power than distilled or soft water.

The total amount of salts in a dose of mineral water which would produce diuresis was very much less than that required to produce the same effect in artificial solution. Two explanations of this were possible: either the mineral elements in the natural water were more active through existing largely as free ions, or the various ingredients of the water acted as adjuvants to one another, an effect which had been demonstrated by the work of Schloessor in the case of certain salts as adjuvants to caffein. The action of mineral waters in producing diuresis was shown by Blum to be partly upon the cells of the tissues generally and partly upon the renal epithelium. Blum therefore classified certain salts, notably the chlorides of calcium and potassium, as " interstitial diuretics." These salts, whose action was mainly due to the kations (Ca and K), but partly also to the Cl, acted by dehydrating the tissue colloids. Sodium chloride, on the other hand, caused a hydrating of the colloids and opposed the action of the calcium salts. This antagonism of calcium and sodium was of great importance in view of the fact that they were the commonest constituents of our natural spring waters. Three well-defined types of mineral waters possessed diuretic properties—the sulphur water, including the sulphuretted salines, the calcareous, and the radio-active thermal waters of low mineralisation. Since the sulphuretted salines contained sodium chloride their diuretic action presented a problem.

Recent observations by Keller at Rheinfelden, and Violle at Vittel showed that NaCl was definitely inhibitory of diuresis. The latter concluded that each of the elements of a water, conceived as ions, had its own peculiar action and that only when there was a certain definite relationship between the various elements of a spring water was there any physiological property or therapeutic value. These relative proportions were comparatively rare among the considerable number of natural springs. Violle's experiments were of great importance as indicating why two waters of approximately similar composition so often differed widely in their actions, but Dr. Buckley thought that the results would have been more valuable had the artificial solutions used been of nearly the same strength as the natural spring water of the Grand Source. It might well be that the weaker natural solution was more powerfully diuretic owing to its higher degree of ionisation. Violle found that the diuretic action of a water was neutralised when the number of Na ions was half that of Ca ions, yet Zeller found that NaCl solutions, administered either orally or intravenously, produced a diuresis, and Keller found that NaCl notably increased the excretion of urea. The problem was, therefore, a complex one and might be affected by the diet and amount of fluid drunk before the test, as was suggested by the observations of Baird and Haldane. Certain effects of calcareous waters upon metabolism were also of importance. Kionka, in 1900, showed that calcareous waters tended to diminish the urea in urine, and in 1921 Miyadera found that this effect was produced without affecting the total nitrogen metabolism. Observations on the blood showed that the urea content was progressively diminished.

No experimental observations upon the effects of the third or radio-active type of waters had been published, but the clinical evidence of their diuretic effect was overwhelming. Such waters contained a large number of mineral salts in such minute quantities that they were almost completely ionised, as well as being charged with considerable amounts of gas—nitrogen, carbon dioxide, argon, and helium; they were radio-active owing to the emanation or "niton" which they contained. Experiments with artificially-produced radio-active solutions had not produced results comparable with those of the natural waters, perhaps owing to the lack of gaseous mineral constituents upon which the emanations might be supposed to have an adjuvant effect.

Dr. Buckley suggested that the explanation of the diuresis produced by the minute quantities of mineral salts in certain waters such as the Buxton mineral water might lie in their action on the pituitary body; in this respect the slight but definite and fairly constant fall in blood pressure after drinking this water was very suggestive, since slight stimulation of the posterior lobe of the pituitary caused diuresis with a fall in arterial pressure. Increased stimulation of the posterior lobe reversed this effect, and here again a parallel occurred in the case of a few patients in whom the ingestion of Buxton mineral water caused a diminution of the output of urine. In such cases, he suggested, smaller doses of the water might have the desired effect of diuresis by avoiding over-stimulation of the pituitary.

Discussion.

Mr. J. Race had investigated the comparative effect of Buxton thermal water and of distilled water in a number of cases of tophaceous gout. The method selected was to place the patient upon a normal hospital diet containing 50 oz. of fluid for several days until a general equilibrium was established and then to collect the urine over 24-hour periods; during the second period the normal fluids were supplemented by 20 oz. per diem of distilled water divided into three equal portions, and during the third period distilled water was replaced by mineral water. In some cases during a fourth period the effect of mineral-water baths on alternate days in addition to mineral-water taken internally was determined.

While the diet was slightly variable it was found that the nitrogen excreted in the urine was fairly constant, and that such a diet, being a normal one, did not cause digestive disturbances. In 16 cases the following average volume of urine was passed: Period i. (no extra periods), 1066 c.cm.; ii. (distilled water), 1349 c.cm.; iii. (mineral water), 1626 c.cm. In 11 cases in which the effects of baths were tested the following averages were obtained: Period i., 1113 c.cm.; ii., 1409 c.cm.; iii., 1693 c.cm.; iv. (mineral water and baths), 1745 c.cm. From these figures it appeared that the diuretic value of mineral water was much superior to that of distilled water; with the former 98 per cent. of the extra fluid was excreted in the urine, while with the latter only about 50 per cent. was excreted. The baths at a temperature of 96°–98° F. did not materially affect the amount of diuresis. In all cases the increase in the flow of urine was slightly less than the amount of extra fluid ingested. Concurrently with the increased flow of urine the total amount of salts and solids in the urine was also raised by mineral water drinking. Thus the figures for sodium chloride were: Period i., 7·4 g. per diem; ii., 7·8 g. per diem iii., 8·2 g. per diem; iv., 9·5 g. per diem. A most important feature of the diuresis obtained by mineral water was the reduction in the hydrogen-ion concentration of the blood, which allowed of a greater solubility of sodium urate, and tended towards a more complete nitrogen metabolism. Thus the average amounts in grammes per diem of urinary nitrogen appearing as urea and as uric acid respectively were: Period i., 7·65 and 0·128, ratio 59/1; ii., 7·72 and 0·117, ratio 66/1; iii., 7·85 and 0·113, ratio 69/1. The increase in the total amount of nitrogen excreted was small but quite definite, while the uric acid content of the blood was reduced on the average by 25 per cent., although the amount excreted in the urine was actually diminished. From this it would appear that there was a reduced absorption of uric acid precursors from the intestines, or an increased destruction of uric acid, or a reduced production of uric acid in intermediary metabolism. Possibly all three actions occurred.

From his observations Mr. Race concluded: (1) that the natural Buxton mineral water had a diuretic effect superior to that of distilled water; (2) that it increased the elimination of sodium chloride; and (3) that it decreased hydrion concentration and favourably influenced metabolism.

Dr. Fortescue Fox suggested that the periods i., ii., iii., and iv. should be more prolonged in future experiments since some persons were affected over long periods by a short period of mineral water drinking. In the baths experiment the temperature of the water was very important.

Dr. W. Langdon Brown commented on the smallness of the variation in nitrogen excretion produced by mineral water drinking which lay well within the normal range of variation produced by diet. Throughout the discussion it was assumed that diuresis was beneficial to the patient. That this was not necessarily so might be seen from the condition of patients suffering from diabetes insipidus. Without having heard the President's introduction he (Dr. Langdon Brown) made similar observations upon the probable effect of the endocrine factor in diuresis. He had recently suggested that the pituitary body regulated the threshold of the kidney for water. The effect of light, warmth, and climate upon the surface of the body acting upon the sympathetic system was also a factor in the problem.

Dr. Halls Dally, Dr. J. B. Burt, and Dr. W. Edgecombe (who referred to the extreme difficulty of obtaining accurate and reliable figures in experimental work of this kind and also described the diuretic effects produced by the two types of salines at Harrogate) also spoke.

Dr. Buckley, in reply, agreed that it was necessary to emphasise that diuresis if it concerned water alone was not an object to be aimed at, but if with the increased excretion of water went an increased elimination of waste products in solution a very useful end was attained, and even more important was the associated effect upon metabolism indicated by Mr. Race's experiments. He did not attach any special importance to the increased excretion of urea, but to the variation in the urea-uric acid ratio in respect of which the criticisms as to the influence of variation in diet, &c., had not the same force. His remarks on the action of saline waters had not been intended to belittle their value, but to indicate the trend of modern criticism as to the mode by which they produced their beneficial effects.

SECTION OF ANÆSTHETICS.

A meeting of this section was held at the Medical Institute, Birmingham, on Dec. 1st, Dr. A. L. Flemming, the President, being in the chair. Dr. K. B. Pinson read a paper on the

Condensation of Dimethyl Ether and Its Use as an Anæsthetic.

Having stated the reasons for believing a gas to be as such better fitted for use as an anæsthetic then a liquid, Dr. Pinson said that dimethyl ether is a gas at normal temperature and pressure. Its physical properties are not known. He found that it boiled at 24° C., and that at 100° C. it exerted a pressure of 97 pounds to the square inch. It can be safely compressed into cylinders at ordinary temperatures. Dr. Pinson was able to obtain only a small quantity for experiment. The gas condensed into a thin mobile liquid with slightly ethereal pleasant odour.

Mr. L. P. Gamgee read a paper on

A Surgeon's Thoughts on Anæsthesia.

He pleaded for close coöperation between surgeon and anæsthetist. Troubles often arose because an operation started before anæsthesia was deep enough, and this might be the fault of the anæsthetist for letting the surgeon begin, or the surgeon's fault for ignoring the anæsthetist's warning. When operations on the thyroid gland were contemplated the administration of the anæsthetic should not begin until the surgeon was ready to operate at a moment's notice. In his opinion lightness of anæsthesia added to the risk of shock in some operations; moreover, it might lead to inefficiency of the operation. When in abdominal operations the surgeon was hampered by the character of the breathing he should desist from his manipulations until the abdominal movements were satisfactory. This was generally secured by getting the patient more deeply under or by changing the anæsthetic. Mr. Gamgee did not like either morphia or scopolamine before operations. He asked why the Vernon Harcourt apparatus was not more frequently used, and believed that operating theatres were often kept at too high a temperature.

The President advocated the provision of recovery wards.

Mr. W. Billington dwelt on the danger of acetonæmia following on the use of scopolamine and morphia. He preferred small doses of omnopon longer before the operation than the usual practice. Plenty of fluid should be given both before and after operation.

Prof. F. Hobday demonstrated his regulating apparatus for giving chloroform to animals. Dogs had proved, he said, excellent subjects for chloroform, contrary to the common opinion, when the drug was properly administered.

Dr. Walter Jordan related his long and successful experience as to chloroform at an orthopædic hospital, and Mr. Kirkby Thomas demonstrated a new intra-tracheal apparatus.

After the meeting, dinner was given at the Union Club to those members who had come from London and other towns away from Birmingham. The travellers were much indebted to their Birmingham colleagues for their hospitality.

MEDICAL SOCIETY OF LONDON.

A meeting of this Society was held on Dec. 10th at 11, Chandos-street, Cavendish-square, W., Dr. Herbert Spencer in the chair.

Mr. Eardley Holland opened a discussion on

Intracranial Hæmorrhage in New-born Children: Its Pathology, Effects, Treatment, and Results.

During the past few years, he said, the interest taken in fœtal and neonatal pathology had shown a remarkable revival, and an immense amount of material had been investigated under grants from the Ministry of Health and the Medical Research Council. No one interested in the subject could omit to study the pioneer work published 32 years ago by Dr. Herbert Spencer under the title "On Visceral Hæmorrhages in Still-born Children." This work had not received the prominence it deserved; not only had all Dr. Spencer's conclusions held good, but the only new observation made in cranial pathology was that on injuries of the dura mater septa.

Intracranial hæmorrhage was a prolific cause of fœtal and neonatal death, and the prevention of its high mortality an urgent problem of preventive medicine. The majority of these fœtuses, apart from a certain number that were premature, were otherwise sound; they were in a totally different class from the macerated fœtuses that died before labour from some maternal, fœtal, or placental disease. Ætiologically intracranial hæmorrhage could be divided into two groups, traumatic and asphyxial, the former being vastly more important.

Behaviour of the Fœtal Head under Stress.—The fœtal head was a fragile object whose structure displayed a remarkable combination of qualities which enabled it to resist injuries, with defects which disposed it to suffer them. In the birth canal the head was subjected to the action of compressive forces which were the resultant between the powers of labour and the resistance of the maternal passages. The head was therefore in a state of stress during labour—a state which might conveniently be termed "cranial stress." This stress might be regarded as consisting of two elements, a general compression of the whole head and a simple longitudinal compression by opposite forces acting at the ends of the long diameter of engagement of the head in the pelvis. The fœtal head consisted of a non-rigid shell composed of loosely-jointed plates of pliable bone jointed on to a rigid base and strengthened by the attachment of the dura mater and its system of septa. The outstanding feature of the fœtal head was its ability to undergo changes in shape or moulding when subjected to stress. Alteration in shape was brought about partly by a displacement of the bony vault as a whole, and partly by bending of the individual bones which composed it. The displacement of the vault as a whole took place chiefly at the junction of the plate with the base of the occipital bone, a hinge joint which allowed a considerable range of movement forwards and a smaller range backwards. By far the commonest alteration in shape was elongation in a vertical direction with corresponding shortening in the antero-posterior direction. (Slides were shown dealing with the mechanics and results of traumatic intracranial hæmorrhage.) A certain amount of stress occurred in every labour, and in every labour there was a certain amount of head-moulding, but excessive stress gave rise to a dangerous degree of alteration in shape.

Excessive Cranial Stress.—The most important circumstances under which excessive stress and extreme alteration of the shape of the head might occur were disproportion between the head and the maternal pelvis, deficient flexion of the head, and great rigidity of the maternal pelvic floor. The forceps might cause injuries when applied too early or with too great force, when misapplied to the antero-posterior diameter of the head or used to deliver a premature fœtus, or when the fœtus was delivered too rapidly. The septa were much better able to resist a slow than a too rapid head-moulding. In a breech labour the after-coming head was rapidly, though comparatively momentarily, compressed in a series of diameters lying between the forehead and the occiput; thus tearing of the septa was liable to occur as a result of breech labour. He believed that the hæmorrhage generally came from the vein of Galen. Any movement of the apex of the tentorium was necessarily transmitted to the vein of Galen, whose fixed point was at the entrance to the straight sinus. The vein might become kinked, stretched, and engorged, and the main vein or some of its tributaries were easily ruptured. Failing detection of the ruptured vessel, a valuable clue to the origin of the hæmorrhage was its exact situation in the subdural space and its relation to surrounding structures.

Fœtal Asphyxia.—When the circulation of the umbilical cord was obstructed, or the placenta became widely separated or extensively degenerated, the fœtus passed into a state of asphyxia. Most observers agreed that asphyxia was the cause of death in from 30 to 40 per cent. of fœtuses who died during labour. Differentiation between traumatic and asphyxial hæmorrhage was not always possible, and in many cases both factors had existed. Observers differed as to their relative frequency. In his own 92 cases of cerebral hæmorrhage he placed 75 in the traumatic and 17 in the asphyxial class.

Sites and Extent of Intracranial Hæmorrhage.—The hæmorrhages might occupy (1) the subdural space, (2) the lateral ventricles, or (3) the cerebral substance. They were diffuse, and often occupied more than one site—a point of great clinical importance. Hæmorrhage might be severe, moderate, or slight; a large subdural hæmorrhage would spread into all the cranial fossæ as well as over the surface of the brain. Intraventricular hæmorrhage was much less common than the subdural type.

The Surgical Treatment of the Condition.—These cases were not suitable for operative treatment. The hæmorrhage was usually inaccessible at the base of the brain and in the region of the tentorium; also there were often associated visceral hæmorrhages elsewhere. Even if an infant were saved from death by operation, he would very likely become a member of the community who would have been better dead. He would rather show a mother her baby dead than have her reproach him afterwards with a paralytic and deficient child.

Dr. H. C. **CAMERON** followed. His paper is given in full on p. 1292 of this issue of THE LANCET.

Discussion.

Mr. **LAMING EVANS** said that he would limit his remarks to treatment and to the results of treatment. A surgeon was entitled to ask whether the spasticity arising from hæmorrhage was different from spasticity arising from primary neural degeneration of the brain. In orthopædic practice one dealt with the results of upper motor neural lesions; the results of treatment of acquired spasticity from cerebro-spinal fever, &c., were excluded from this discussion. Many methods of treatment of common deformities of the upper and lower extremities were available, but no surgical treatment was complete without special education of the patient. Fifteen years ago great hopes were raised by the operation of section of the posterior roots; he had used it in four cases, with no good result. The operation was now largely abandoned; the success claimed for it was, he thought, due to good after-treatment. Muscle education was important; he had never seen any benefit to result from electrical stimulation. Continuous stretching by means of movable or immovable appliances was of value. The two types of operation were, first, operations on muscles and tendons, and second, operations on the nervous system. The results of the former were better known. Twenty-five years ago tenotomy was almost universally used, but after this operation the case was always liable to relapse. The principle involved in tenotomy was now largely carried out by plastic elongation; he himself used this method where an over-correction was possible or where future function would be interfered with. In England neurectomy had long been used in cases of spasm; the object of this operation was to restore muscle balance by the paralysis of certain fibres, so that the remaining fibres could balance their antagonists.

Mr. H. A. T. **FAIRBANK** did not think that the origin of the rigid condition was of much consequence to the orthopædic surgeon; the latter had only to deal with results, provided that the active lesion was already finished with. He suggested that the age of 3 years was the time for operation; until then the child had not had a fair opportunity of learning normally how to walk. If at the age of 3 a child could sit up alone he would operate on arms or legs if they required it. Older cases were infinitely harder to deal with, because of anatomical shortening of spastic muscles and of ligaments. Before operation the child must make an effort to walk. Contra-indications to operations were idiocy, choreic movements, and fits—the last-named if they occurred with any frequency. Bromides should be given for a few days before and after the operation. Coming to details of operation in various sites, he found it best, if the whole obdurator nerve had to be removed, to open the abdomen. Surgeons were apt not to carry their operations far enough; it was well to remove more of a nerve than was now usually removed. With regard to flexion of the knee, he found operation on the sciatic nerve better than simple division of the hamstrings. In older children with anatomical shortening, however, he also divided the hamstrings. He believed in trying to select the operation most suitable to the individual case rather than in attempting to apply any exact rules. He found results in the arm much worse than those in the leg, the action of the arm not being automatic. If the child tried to walk he had to use both legs; the difficulty when he had one sound arm was to make him use the other. Lastly, apparatus should be used after operation; the final result of a case always depended on after-treatment.

Mr. L. G. **PHILLIPS** was chiefly interested from the obstetric point of view, and in causation and prevention. In the course of an inquiry carried out for the Medical Research Council, he had found that premature babies were four times more liable to have intracranial hæmorrhage than babies born at full term. The lesson to be learned from this fact was, he thought, that induction should not be attempted further back than 35 or 36 weeks, and that forceps should not be applied to premature babies if their application could be avoided. Of his 20 cases of intracranial hæmorrhage examined post mortem during the inquiry already referred to, four cases had followed toxæmia of pregnancy, being due to damage to the endothelium caused by the circulating toxin. The lesions in eclampsia and other conditions were chiefly due to cell degeneration resulting from this damage; the capillaries inside the skull probably suffered in the same way. In half of his 20 cases there had been a rupture of the veins covering either the cerebrum or the cerebellum. Only one case was of intraventricular hæmorrhage. Other injuries were unilateral and bilateral horizontal tears of the tentorium; there were a few cases of petechial hæmorrhage throughout the brain.

The **PRESIDENT** said that with regard to meningeal hæmorrhage resulting from damming back of blood in the veins, he had suggested 32 years ago that this was due to the depressibility of the lower angle of the parietal bone; this bone might press on the great anastomotic vein and cause engorgement. He would like to suggest to Dr. Cameron and others concerned with children's diseases that research into injury of the testes of new-born children would yield very interesting results.

Reply.

Mr. **EARDLEY HOLLAND**, in a brief reply, asked how many infants born with cranial hæmorrhage survived. It had been thought that none of them did survive, but he believed that a large number actually lived after a slight tear had occurred; in support of this view he recalled the fact that infants with enormous intracranial tears sometimes lived for a week. During the early part of the war he had come across a case of a baby which lived for two days, and showed post mortem an extensive healed tear in the left side of the tentorium. This case he had photographed; he had never come across another one.

Dr. **CAMERON** also briefly replied.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on Nov. 29th, Prof. J. HILL ABRAM, the President, in the chair.

Dr. W. **JOHNSON** read a note on

Acute Infectious Polyneuritis.

He said that amongst the rarer forms of multiple peripheral neuritis is that known as auto-infectious or acute toxic polyneuritis. He gave a short account of two cases he had seen recently, and pointed out that the disorder is usually ushered in by what the patient may describe as a "chill" or "influenza." There may be a variable interval between such a chill and the onset of the neuritic symptoms. These usually begin as sensations of numbness and tingling in the toes and fingers, followed by marked motor weakness in all four limbs. Soon the facial muscles become affected, and this observation, combined with, later, the occurrence of trunk muscle weakness, serves to indicate the correct diagnosis. Sensation is dulled over the distal portions of the extremities, but the sensory loss is usually much less marked than the motor loss. Apart from other forms of peripheral neuritis, the condition may simulate Landry's paralysis and acute ascending myelitis at the outset. The peripheral distribution of the symptoms, the disordered sensation, and the presence of facial paralysis are the chief points which would lead to the diagnosis of acute infectious polyneuritis. The cerebro-spinal fluid shows no definite change.

Mr. **LEYLAND ROBINSON** said that the disease in one of Dr. Johnson's cases might be associated with a transfusion of whole blood which had been carried out for post-partum hæmorrhage two weeks before the onset of the neuritic symptoms. Polyneuritis was recognised as a rare complication of parturition and due to pregnancy toxæmia (pernicious vomiting) or puerperal septicæmia, both of which could be excluded in this patient. The clinical features so closely resembled the type seen in France during the war as to suggest a common ætiology, and although the donor gave no history of neuritis, he had served in France and might be a carrier of the disease. The patient had subsequently become pregnant and had been delivered by Cæsarean section at full term; pregnancy and the puerperium were uneventful.

Mr. G. P. **NEWBOLT** read a note on four cases of

Intestinal Obstruction Caused by Gall-stones.

Three of the cases were women, all of whom recovered, one case was a male, who died. The symptoms were those of intestinal obstruction. Fæcal vomiting with intermissions was present. Constipation was not absolute and there was not much abdominal distension. The patients were all stout and elderly, one woman weighing 19 st. The chemical examination of the last stone removed was that of a typical gall-stone.

Mr. G. C. E. **SIMPSON** said that he had seen two cases of this condition, both in women. One, aged 70, died of pneumonia after operation. In the other case gall-stones were diagnosed, but the vomiting passed so insensibly into the vomiting of obstruction that some days were lost; in the latter case on exploration the adhesion of the gall-bladder to the duodenal angle was seen and two stones were felt firmly impacted low down in the common duct. Presumably the fistula first formed in the initial severe attack, the only attack accompanied by jaundice, six months before the big stone passed, and gave rise to obstruction. Operation on the biliary region had not yet been undertaken.

Dr. C. O. **STALLYBRASS** read a paper * on the recent outbreak of

Encephalitis Lethargica.

Having referred to the past history of the disease, he stated that whilst it was not new its pandemic extension was a new feature. As the disease spread there had been observed in France, Italy, &c., a tendency to evolve from a type presenting depression of function to one exhibiting exaltation of function; instead of palsies, lethargy, and somnolence, there were involuntary movements, delirium, and sleeplessness. In Liverpool, in 1921, 81 per cent. of the cases were of the first type. In the winter 1922–23 a considerable outbreak involving over 100 cases occurred and only 52 per cent. were of the first type. The delirium was usually occupational. Alteration in type was accompanied by increased fatality as well in the lethargic as in the over-active type; age-incidence was identical in both types. A definite history of contact with a preceding case was found in 9 per cent. of the cases. Dr. Stallybrass described four abortive cases. The virus he regarded as a variable one, which at times exhibited marked malignancy and increased pathogenicity, as at Derby, Rudduvoorde, and, probably, at Mülheim.

Dr. A. G. **GULLAN** stated that he had first seen cases of encephalitis lethargica at the end of 1919, when they were of the lethargic type, and though they were not paralysed the patients lay motionless in bed, were only roused with difficulty, and spoke in a monotonous, toneless voice. The only interest the patients took was, that in a feeble voice, they asked "whether they were going to recover." He agreed that the expressionless face was the most characteristic symptom of the disease, both in the lethargic and in the restless varieties. In 1922 he saw a considerable number of cases of the excited form in which choreic movements, wakefulness, and in some instances occupational delirium were present. Dr. Gullan stated that his mortality was considerably lower than that given for the whole of Liverpool; at the present time he had a case of the lethargic type in his wards which gave a previous history of trauma.

Reviews and Notices of Books.

PATHOLOGICAL PHYSIOLOGY OF INTERNAL DISEASES.

By ALBION WALTER HEWLETT, M.D., B.S., Professor of Medicine, Stanford Medical School. London and New York: D. Appleton and Co. 1923. With 151 illustrations. Pp. 765. 35*s*.

THE proper understanding of the normal functions of the body and of the manner in which they may become deranged in disease is the basis of scientific medicine. To keep abreast of recent work in physiology, biochemistry, immunology, and the like is, however, by no means easy, and implies leisure for reading and access to literature which the general practitioner is rarely fortunate enough to enjoy. Prof. Hewlett's book meets the demand so often expressed for a critical and reliable guide to modern pathological physiology. Dealing with the circulation, digestion, metabolism and its disturbance, fever, the derangement of respiration, renal function, infection, the blood, the nervous system, and the endocrine organs, he describes the functional changes brought about by disease and discusses their causation. He does so in a clear and readable manner, avoiding controversy when possible and presenting a definite point of view. The reader is presented with a clear and concise picture of disease, and an adequate bibliography is appended to each chapter for the benefit of those who may desire to extend their reading to the original sources. As is only to be expected in a subject of such dimensions, certain of the sections are more satisfactory than others, but on the whole the book is well balanced throughout, and may be confidently recommended to students and practitioners alike.

CHRONIC INTESTINAL STASIS—A RADIOLOGICAL STUDY.

By ALFRED C. JORDAN, C.B.E., M.D., M.R.C.P. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 230. 25*s*.

ALIMENTARY delay, or constipation in its widest sense, is of immense importance to human well-being, and the radiologist—to whom the viscera are not the sealed book that they are to others—is in a better position than most to make exact observations. In his preface, Dr. Jordan says, "I have attempted to give an ordered account of chronic intestinal stasis. I have found it a difficult task, so interwoven are the effects of stasis. There is unavoidable repetition, and I hope my readers will forgive this, especially as the repetition is more apparent than real and is, in fact, a presentation of the subject from many aspects." To this volume Sir Arbuthnot Lane contributes a

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* See also THE LANCET, Oct. 27th, p. 922.

"foreword," so that we know from the start we are reading the work of a follower of the doctrines of Lane. Those who wholeheartedly accept these doctrines will, no doubt, find the study completely satisfying.

Dr. Jordan is safest and best when he is examining the intestinal viscera almost wholly from the point of view of the skilled radiologist. Thus, following his brief summary of the developmental causes of "stasis," he proceeds to deal with the intestinal tract under the chapter headings of the Large Intestine in Chronic Intestinal Stasis; the Pelvic Colon in Stasis; the Peristalsis of the Large Intestine; Colitis; Diverticulitis; the Ileal Kink; Ileal Torsion; the Undescended Cæcum; the Appendix. All of these conditions are well described and appear to the reader to be really close to his subject. A good case is made out for including studies of duodenum and stomach. In regard to cardiospasm, no doubt "stasis" may be one of its causes, although treatment on the lines recommended by the author will, we think, not always be successful. Dr. Jordan would have us believe that chronic intestinal stasis will cause such varied conditions as chronic mastitis, certain forms of blindness, disseminated sclerosis, epilepsy, aortic aneurysm, fibroid phthisis, gall-stones, glycosuria, Dupuytren's contraction, and cancer. Now intestinal disorders are common, while a number of the diseases enumerated are relatively uncommon. Some of the illustrations given are very striking, and the association of two apparently unrelated conditions is often curious and suggestive; but it must be remembered that the citation of a number of cases in which these diseases were present and associated with intestinal derangement is not in itself proof.

Radiological technique has reached a high degree of precision, but even now the illustrations so obtained are difficult to interpret. In spite of the carefully numbered and lettered descriptions, some of them will leave the reader with an open mind. It would, perhaps, be better if in a later edition Dr. Jordan enlarged the book in the direction of making it a complete work on radiological investigation of the intestinal tract alone, or confined it rigidly to advancing proofs of the correctness of Lane's hypothesis. In either sphere his experience would be welcome and carry weight.

EXERCISE IN EDUCATION AND MEDICINE.

Third Edition. By R. TAIT MCKENZIE, M.D., LL.D., late Major, R.A.M.C.; Professor of Physical Education and Director of the Department, University of Pennsylvania. London: W. B. Saunders Company. With 445 illustrations. Pp. 601. 24*s*.

ALL those who are interested in physical work, whether educational or gymnastic, have grown accustomed to look forward to reading anything from the pen of Tait McKenzie. The rare combination of physician, sculptor, and university professor has qualified him to produce a standard work on the subject which he has made particularly his own. The book is divided into two sections, the first of which is devoted to exercises in education, and the second to exercises in medicine. The first part gives a most comprehensive survey of the subject, and deals largely with history, comparing the systems of gymnastic education in vogue in various countries with admirable precision and clearness. It is mainly in these pages that the value of the combination of medical man and sculptor is so clearly shown. It is perhaps unfortunate that more reference has not been made to the attempts that are now being made throughout our national schools to pay serious attention to the physical fitness of the children attending them; for, although the system is still in its infancy, it has made such rapid strides as to be worthy of comment. At the same time, it cannot be denied that the perusal of the account given of educational gymnastics in other countries is, in places, inclined to fill the British reader with an envious admiration. More particularly will this be the case amongst those who have had the opportunity of seeing the author's magnificent work in his own University at Philadelphia.

A glance through the titles of the 17 chapters in this section of the book shows at once its comprehensive scope, since even the physical education of the blind and the deaf-mute is given full consideration. The chapter devoted to the physical education in girls' schools and women's colleges places the pros and cons of this much-debated subject with great clearness, and a careful study of these pages by those who have joined in the acrimonious discussion of this subject would speedily clear the ground for a more ready settlement of divergent views. In the section dealing with exercises in medicine the author changes his rôle from that of the sculptor and scholar to that of the medical practitioner. He has, of course, found it impossible entirely to separate treatment by exercise from treatment by other physical means; and a certain amount of consideration has been devoted to treatment by massage, though other methods, such as electrical treatment, have received but passing mention. One of the outstanding features of treatment by exercises prescribed by the author is the frequency with which his patients are instructed to carry out certain stated movements. Almost the whole field of physical therapeutics is covered by the book. Its title may lead to the impression that it is only intended for the masseur-gymnast and physical-therapist. It is to be hoped that others, too, will study its pages. There can be few medical men who would fail to derive much practical help therefrom in the treatment of patients.

BIOLOGICAL TECHNIQUE.

Handbuch der biologischen Arbeitsmethoden. Herausgegeben von Geh. Med.-Rat. Prof. Dr. EMIL ABDERHALDEN, Direktor des Physiologischen Instituts der Universität Halle a. d. Saale. Abt. IV., Teil 3, Heft 2, Lieferung 106, Blutuntersuchungen. Berlin und Wien: Urban und Schwarzenberg. 1923. Pp. 514.

THIS number of the "Handbuch der biologischen Arbeitsmethoden," now appearing under the editorship of Prof. Abderhalden, will be of particular interest to students of the blood. Each of the seven sections is written by an authority who has himself contributed to the sum of knowledge on his subject, and, in consequence, all contain matter not available in any previous handbooks. But little attention is given to theoretical considerations; the whole purpose of the work is practical, and the details of all the procedures described are fully and clearly set forth. The first two sections will be of least interest to workers in this country; in the former Hamburger, of Groningen, describes an accurate method for estimating the fragility of the red cells, which is undoubtedly a great advance in technique on Widal's original method, but has the disadvantage of requiring rather elaborate specially made apparatus; in the latter Reiss, of Frankfurt-am-Main, describes the newer methods of refractometry of the serum. In the third section Kleinmann, of Berlin, goes very fully into the theory and practice of colorimetry and nephelometry; this is a most valuable contribution. Fahraens, of Stockholm, in the fourth section deals with the suspension stability of the red cells; this subject, interesting though it be academically, offers little promise of useful clinical application, and has attracted little attention in this country. It is interesting to note that the first true observation on this matter was made by an Englishman, or rather Briton—Hewson—who in 1772 demonstrated that the formation of a "buffy coat" depended upon sinking of the red cells before clotting had occurred. The author points out the fact, not usually recognised, that diminution of the suspension stability depends not upon retardation of clot formation, but is due to the clumping of the red cells, the fall of the cells being the more rapid the larger the clumps formed. In the fifth section Degkwitz, of Munich, details a number of procedures applicable to the study of the blood platelets, and in the sixth and seventh Schelcht, of Duisburg, and Frank and Seeliger, of Breslau, respectively have collected and fully described a large number of histological procedures of the greatest value in the study of the blood and hæmatopoietic systems.

The Examination of Patients.

By Nellis B. Foster, M.D., Assistant Physician to the New York Hospital; Associate Professor of Medicine at Cornell University College of Medicine. London and Philadelphia: W. B. Saunders Company. 1923. Pp. 253. 18*s*.

Dr. Nellis Foster is familiar to many readers in this country as the author of a number of penetrating studies and illuminating lectures on clinical medicine. His new book will be greatly appreciated by those who prefer an account of the everyday methods of one skilled physician to the generalities of the ordinary text-book. Dr. Foster here records his routine in the examination of patients, and the precision of his writing, the thoroughness of his method, and his critical but sympathetic attitude to recent advances, make his book a most valuable one to all those engaged in general practice. We do, however, feel that the book loses a great deal through the omission to include descriptions of the clinical examination of the blood and lymphatic systems and of the urine. We can imagine the practitioner turning to this volume in a hundred difficult situations, and receiving the greatest service from the author's description of examination of a cardio-vascular, gynæcological, or neurological condition. But should his patient be one with a grave anæmia, or an obscure splenic enlargement, he will not get the same assistance. We hope that future editions may see these omissions corrected.

Loeb Classical Library.

Hippocrates. Vol. II. With an English Translation by W. H. S. Jones. London: Heinemann. 1923. Pp. 336. 10*s*.

A review of the first volume of this edition of the text, with a translation of the Hippocratic Corpus, appeared in our issue of Sept. 8th. This volume contains the following treatises: Prognostic, Regimen in Acute Diseases, The Sacred Disease, The Art, Breaths, *περὶ φυσῶν*, Law, Decorum, Physician (Cap. I.), and Dentition. The Introductory Essays contain, amongst others, one upon Ancient Nursing, derived from information contained in the treatises Epidemics, Regimen in Acute Diseases, and Decorum, from which it appears that the nursing was carried out by a pupil—i.e., by someone more or less fully trained. Another essay deals with the subject of Ancient Medical Etiquette, or rather Medical "Good Form," the information being derived from the treatises The Oath, Law, The Physician, Decorum, and Precepts.

Perhaps the most interesting treatise in this volume is that upon The Sacred Disease, which, mutatis mutandis, might have been written by Erasmus. The writer considers that no one disease is more divine than another, "all are divine and all human. Each has a nature and power of its own; none is hopeless or incapable of treatment." The term "Sacred Disease" apparently includes not epilepsy alone but any convulsive affection—e.g., the writer's description of the disease in cattle and goats seems to refer to hydatid of the brain (p. 169). Two other notable treatises are those entitled Law and Decorum. Mr. Jones suggests, with great probability it seems to us, that these two treatises, and possibly Precepts as well, deal with matters discussed and only known to medical men who belonged to a guild or secret society. Thus the last sentence of Law ends as follows: "Holy things are shewn to holy men; to the profane it is not lawful to shew them until these have been initiated into the rites of knowledge." In Precepts V. a genuine physician is called "one made a brother." The expression "Holy things for holy persons" is a common religious formula, and we may point out that it has survived to this day, with a slightly different application, in the Eastern Liturgies, such as those of Chrysostom and Basil, where at the Elevation the priest says: "The Holy things are for the holy" (*τὰ ἅγια τοῖς ἁγίοις*), while in the West we find the same phrase, "Sancta Sanctis," in the Mozarabic and Gallican Liturgies,. Although the latter is not now in use, the former is daily said in the Cathedral of Toledo.

JOURNALS.

British Journal of Ophthalmology. — The original articles in the October number are physiological. The Blood Pressure in the Eye and its Relation to the Chamber Pressure is the title of an article by Priestley Smith, in which many problems are discussed, such as the self-adjusting equilibrium of pressure inside and outside the retinal veins, the venous pulse and its relation to finger pressure, &c. The author is one whose researches are always valuable. The second article is by H. Herbert on the Pectinate Ligament in its Relation to Chronic Glaucoma. The anatomy of the ciliary region is still a subject about which complete certainty has not yet been established. In this article the scleral spur discovered by Prof. Thomson, of Oxford, on which his "pump action" theory is founded, is criticised as not having been found in the eyes examined by Herbert. According to Herbert there are striking anatomical variations in the mode of attachment of the longitudinal fibres of the ciliary muscles, some types involving a greater predisposition to glaucoma than others.——The November number is a clinical one. The first article by W. Barrie Brownlie and H. Neame calls attention to a risk that attends upon the ordinary operation of advancement of a rectus muscle. A case is given in which an advancement operation was followed in a few months by the appearance of an implantation cyst of the iris and ciliary body. In spite of a large iridectomy, which included all the anterior wall of the cyst, its recurrence was inevitable, and ultimately the eye had to be excised. Such a disaster as this, though of course extremely rare, ought to be a warning to all operators. The position of the cyst, as determined by pathological examination, suggested that the needle carrying one of the sutures was passed too deeply, and traversed the anterior part of the ciliary body at its junction with iris root and pectinate ligament. The advancement operation had not been performed by the author of the article, but he charitably remarks, "Who will say conscientiously that he has never left a suture in the deep ciliary region or even deeper?" A case of cyst of the sclera following upon an advancement operation was reported in 1921 by C. Goulden and M. H. Whiting at a meeting of the Ophthalmological Society, and in the discussion that followed Mr. Cyril Walker spoke of a cyst following an advancement operation which projected both externally and internally. In this case, however, the growth stopped spontaneously. To avert such a disaster as is here narrated it is necessary not only to avoid penetrating too deeply into the sclera with the needle, but also to keep the overlying conjunctiva well out of the way so as to mitigate any risk of it being carried into the wound along with the needle. Sanford R. Gifford writes of intra-cisternal injections in the treatment of luetic atrophy, and J. J. Keegan of the technique and reaction of intracranial bichloride injections. The latter author admits that the constancy and severity of the immediate reaction from the injections make this a rather heroic procedure. Nevertheless, the first author reports improvement of vision in five cases, the best results being obtained in early cases with relatively good central vision, at least in one eye, and with little evidence of other nervous involvement. The fourth article in this number, by A. W. S. Sichel and A. R. Fraser, reports a case of hemianopia as the sole clinical feature in untreated secondary syphilis.

The Medical Clinics of North America are published bi-monthly, and the price of a year's issues, which comprise a complete volume, is 55*s*.

THE LANCET.

LONDON: SATURDAY, DECEMBER 15, 1923.

ORAL SEPSIS AND CANCER.

In a recent paper[1] Mr. F. St. J. Steadman has collected a considerable amount of evidence, chiefly indirect, to support the view that prolonged sepsis in the mouth might predispose to cancer of the alimentary canal. He comes to the conclusion that oral sepsis is "one of the commonest, and probably the commonest, predisposing cause of cancer of the alimentary canal and its associated parts." He points out that cancer of the alimentary canal accounted for 63 per cent. of the total mortality from malignant disease in 1901 to 1904. He has examined 204 cases of cancer of the alimentary canal, and found that practically all were suffering from pyorrhœa. As a control an examination of over 800 individuals free from cancer showed that pyorrhœa was present in 88 per cent. Mr. Steadman grouped the cases into three categories, according to whether the pyorrhœa was slight, moderate, or severe, and from the figures obtained he has constructed what he terms the "maximum pyorrhœic index." The index figure obtained from examination of the cancer patients was 91·6 per cent., while that of the cancer-free individuals was only 53·3 per cent.

On these data Mr. Steadman has come to the conclusion that the majority of persons with cancer of the digestive tract have advanced pyorrhœa, while the latter is less common in persons free from cancer. Mr. Steadman has quoted statistics from the Registrar-General's reports; it is a little surprising that he has not grouped the cases of cancer of the alimentary canal according to sex as well as to their anatomical distribution. If this is done we find that although the total number of deaths from cancer of the alimentary canal is approximately equal, though actually greater in the male, yet the deaths from cancer of the buccal cavity are in the proportion of seven to one in males and females. In 1921 the deaths from cancer of the mouth were in males, 1482; in females, 358. The total death-rates from cancer of the mouth in males and females in the ten years from 1911 to 1920 show a similar proportion. If oral sepsis is such a common predisposing cause of cancer, then we might expect its influence to be most marked in the region in which the sepsis occurs. On this hypothesis it appears difficult to account for the comparative rarity of cancer of the mouth in females. Now if it could be shown that pyorrhœa had a sex incidence similar to that of cancer of the mouth it would help Mr. Steadman's views. It is, however, quite certain that pyorrhœa is little, if at all, less frequent in women, though actual statistics do not appear to be available; and it is significant that the deaths from disease of the teeth and gums for 1922 were for males, 156, for females, 149. These figures are difficult to reconcile with Mr. Steadman's conclusions. In cancer of the tongue it is generally supposed that excessive smoking and syphilis play an important rôle and partly explain the preponderance of cancer of the mouth in males; but both of these forms of chronic irritation are certainly less common than pyorrhœa. With regard to gastric ulcer and its relation to cancer of the stomach, Mr. Steadman takes it too readily for granted that the ætiology of gastric ulcer is a settled matter. There is considerable diversity of opinion as to whether gastric ulcer is a frequent precursor to cancer of the stomach.

We do not find that the evidence Mr. Steadman adduces is sufficient to prove the very definite statement he makes with regard to oral sepsis and cancer of the alimentary canal. Yet it does not follow that pyorrhœa is a negligible factor. It may well be that it acts by influencing other forms of irritation rather than by acting as an independent predisposing cause of cancer. Thus, syphilis or excessive smoking, or both together plus oral sepsis, may represent a degree of irritation far more likely to lead to cancer of the tongue than when oral sepsis is absent. But in his attempt to establish oral sepsis as an important ætiological factor in the incidence of cancer in the alimentary tract generally Mr. Steadman appears to have forgotten his 865 control cases which did not have cancer. No less than 88·5 per cent. of these had periodontal disease, and even if we accept his pyorrhœic index 177 of these control cases showed a maximum degree of pyorrhœa. The presence of oral sepsis in the body cannot be other than harmful, but we should need stronger evidence than that put forward to attribute to it such a preponderant rôle in the causation of cancer of the alimentary canal.

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THE COMMERCE OF CURES.

Novel cures and fresh theories of the treatment of disease are sometimes received by the daily press and the public with an unguarded enthusiasm which bequeathes a legacy of disappointment to the sufferers who hope to benefit thereby. The great expectations of pathology are not always realised. "I've known over thirty men that found out how to cure consumption" (says the old doctor in Mr. Bernard Shaw's play); "why do people go on dying of it?" Even those prospective remedies of which high hopes are justly formed may require a protracted period of proof or preparation before they are available for the ordinary patient. The Spahlinger treatment for tuberculosis seems to be passing through this stage. Phthisical patients anxious to undergo this treatment are, it is said, informed that if they will subscribe a thousand pounds towards the cost of the remedy, or will take up a thousand pounds' worth of shares in the undertaking, all facilities for a cure will be forthcoming.

Exactly in what terms or circumstances or upon what authority any such proposal may have been made, we are not concerned to discuss. If the suggestion be unfounded, it still has an abstract interest for the medical profession. If a patient asked whether he should undergo such a treatment on such a condition, what advice should a doctor give? The Spahlinger system makes confident claims to success. A thousand pounds would not be an excessive price for the cure of tuberculosis. Statements have been made in Parliament which throw light on the present position. During the debate on the Appropriation Bill last August a critic of the Government and an advocate of the Spahlinger system mentioned that the undertaking was in financial difficulties, with liabilities of £100,000, and that the Ministry of Health had been pressed to find that sum and to guarantee £10,000 a year for three years. The official reply was that the Ministry was satisfied that there was a prima facie case for such further inquiry into the Spahlinger treatment as would enable medical authorities and the world in general to form a definite and final opinion as to its efficacy. It was suggested that Mr. Spahlinger should take an early opportunity of making a full statement of his process and results to a body competent to pass expert judgment on them. Last year, it was stated, the Ministry sent a specially qualified officer to Switzerland to acquaint himself with the treatment. Subsequently, in August, 1922, the Ministry made a proposal to Mr. Spahlinger which was unacceptable to him. Arrangements made between him and the Red Cross Society also broke down. Further negotiations between him and the Ministry had lately taken place. There, it seems, until financial assistance be forthcoming from private sources, the matter at present rests. The Ministry of Health can hardly be blamed for adhering to the official view that public funds cannot be embarked except upon the basis of adequate information and reasonable security.

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[1] Brit. Dent. Jour., Dec. 1st, 1923.

It may be safely stated as a general proposition that professional opinion deprecates the association of therapeutic agents with such extraneous elememts as secrecy, guaranteed cures, newspaper campaigns, and company flotation. Apart from these considerations, however, neither ethics nor professional etiquette can qualify the obvious fact that if an expensive form of treatment is not yet commercially developed, the cost of applying it must be very high. The cost of remedies has sometimes been cheapened and production has been facilitated by the generosity of a rich benefactor or by means of a grant from public funds, and it is just as laudable, and certainly as practical, to subscribe to the development and application of a particular remedy as to subscribe to research in general. But with regard to the individual patient, it seems to us that the proposition turns on the answer to the question, "Has Mr. Spahlinger yet produced an agent which enables us to tell a patient that the payment of a definite sum will produce a definite benefit for himself?" Until any therapeutic agent, however promising, has reached such a stage, we are surely unjustified in promoting research on its behalf by appealing to the hopes or fears of the class of patient whom it is seeking to relieve. Should Mr. Spahlinger offer to treat a patient there is nothing in our law to prevent his asking whatever fee he cares to name; but he has no moral right to appeal to the sick to aid him in research, nor have those who support his demand any right to claim subsequent priority of treatment.

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THE SURGERY OF THE SYMPATHETIC.

The working of the organs of internal secretion is intimately bound up with the activity of the vegetative nervous system, and with the increasing study devoted to endocrine function it is not surprising that a great deal of attention has been directed to the physiology of the autonomic nerves. So that a real surgery of the sympathetic system has grown up. A few weeks ago the work of Leriche on the effects of arterial decortication was reviewed,[1] and the conclusion arrived at that an extended investigation of this method of treatment is necessary before any satisfactory evaluation can be made. The perusal of a striking monograph[2] just published by Prof. Thomas Jonnesco, of Vienna, on the surgery of the cervico-thoracic sympathetic, leads to the belief that this branch of the subject should also be very carefully considered and the possibilities of the operation therein described be further explored.

Briefly, Prof. Jonnesco recommends complete excision of the cervical sympathetic with extirpation of the stellate ganglion for exophthalmic goitre, angina pectoris, migraine, epilepsy, trigeminal neuralgia, and glaucoma. The arguments for a sympathetic origin of the symptoms of exophthalmic goitre are well set forth. It is held that whatever may be the beginnings of this obscure disease, certainly the symptoms are perpetuated by overactivity of the cervical sympathetic. The extirpation of this cord then is the logical procedure. Jaboulay was the first to operate upon the sympathetic for Graves's disease, but his operation soon fell into disrepute because it was found to be ineffective. This failure Prof. Jonnesco holds to be due to the fact that the superior ganglion only was destroyed, whereas many fibres reach the gland from the lower part of the cord. The cases described and illustrated by Prof. Jonnesco are very striking. He has operated upon 50 cases with four deaths. The immediate result in all the other cases was a very pronounced amelioration of the symptoms; and that the relief was permanent he was able to establish in the 14 cases which he was able to trace. The experiments of Cannon in 1915, who anastomosed the peripheral end of the cut phrenic nerve to the cervical sympathetic and was able to obtain certain of the symptoms of Graves's disease, demonstrated the important influence exerted by nerve impulses upon the thyroid, whilst Reinhard[3] has shown how chronic irritation of one cervical sympathetic led to hypertrophy of the corresponding lobe of the gland. The latter observer also has obtained very good results from Jonnesco's operation in eight cases. The technique itself demands a rather delicate dissection. It is illustrated by many beautiful plates in Prof. Jonnesco's monograph. In these the spinal accessory nerve is shown divided in every case, though in the text the author says he avoids it. Injury to this nerve would be a serious drawback to the procedure. A still more interesting section is that which deals with angina pectoris. The operation of sympathectomy, dividing as it does all the cardiac nerves, breaks the afferent path by which the crises are precipitated. In four cases the results were extremely good. W. B. Coffey and P. K. Bain[4] have recently reported their results of a more limited operation on the sympathetic for angina. In two of their patients complete freedom from attacks resulted, whilst in the others there was considerable relief. The efficacy of Jonnesco's operation in migraine, trigeminal neuralgia, and epilepsy is by no means established, whilst in glaucoma it would seem to be definitely contra-indicated.

Undoubtedly extirpation of the cervical sympathetic cord needs further study, and its main field of usefulness may prove to be the alleviation of suffering in angina pectoris.

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[1] The Lancet, Nov. 17th, p. 1096.

[2] Le sympathique cervico-thoracique. Paris: Masson et Cie. 1923. Pp. 92, with plates. Fr.42.

[3] Deut. Zeitschr. f. Chir., 1923, clxxx., 170–177.

[4] Archiv. Int. Med., 1923, xxxi., 200.

Annotations.

"Ne quid nimis."

PANEL INQUIRY: TERMS OF REFERENCE.

The Minister of Health has approved the following terms of reference for the Court of Inquiry set up in connexion with the terms of remuneration for the insurance medical service after Jan. 1st, 1924:—

"To inquire and report to His Majesty's Government what should be the amount of the capitation fee (per insured person per annum) on the basis of which the Central Practitioners Fund under Article 19 of the National Health Insurance (Medical Benefit) Regulations, 1924, should be calculated as from Jan. 1st, 1924, so as to afford adequate remuneration for the time and service to be given by general practitioners under the conditions set out in those Regulations, in connexion with the medical attendance and treatment of insured persons, due regard being had to the service in fact rendered under the Regulations hitherto in force. This capitation fee is not to include any payment in respect of the supply of drugs and appliances (such payments being made out of the Drug Fund under Article 24 of the Regulations), or any payments to meet the special conditions of practice in rural and semi-rural areas."

It will be remembered that the personnel of the Court of Inquiry consists of Mr. T. R. Hughes, K.C., Mr. F. S. Goodenough, and Sir Josiah Stamp.

TRANSMISSION OF LEPROSY FROM RAT TO MAN.

In a paper in *Paris Médical* for Oct. 27th Prof. E. Marchoux, of the Pasteur Institute, discusses the possibility of the transmission of leprosy from the rat to man in connexion with a most instructive case. It was that of a man who, since 1910, had been treated in France and England for leprosy, and who finally drifted into the Pasteur Hospital under the care of Dr. Veillon. Superficially, the disease was limited to the limbs and face, where there were numerous brown patches. No cutaneous sensory disturbances were noted, but periodic pemphigoid eruptions had given rise to small round ulcers which had been slow to heal. There were numerous scars resulting from the slow healing of these ulcers, and when their surface or the nasal mucous membrane was lightly scraped and the substance thus obtained was examined under the microscope numerous fine, short, cocciform bacilli were seen, to which Prof. Marchoux has provisionally given the name *Mycobacterium pulviforme*. After the patient's death these organisms were found in great quantities in the skin, lymphatic glands, liver, and spleen; in the last-named organ they were particularly numerous. Rabbits, guinea-pigs, and rats were inoculated from this spleen, and whereas the rabbits and guinea-pigs were unaffected five of the six rats contracted a disease closely similar to, if not actually identical with, rat leprosy—a disease discovered in 1905 by Stefansky in sewer rats. Prof. Marchoux has worked with his virus since 1921; it is now in its fourth passage through rats, and the morbid changes evoked have shown no macroscopic or microscopic deviation from the changes associated with spontaneous rat leprosy. It would seem that the relation of rat leprosy to human leprosy may be somewhat similar to that of bovine to human tuberculosis; the micro-organism of rat leprosy may not find the human body congenial soil except under most rare conditions. Rat leprosy, by the way, would seem to be a comparatively common disease in the sewers of Paris, and it has been calculated that 0·6 per cent. of the Parisian sewer rats are definitely leprous, and that about 5 per cent. are infected to such a limited extent that the disease can only be detected post mortem. This is a point which Prof. Marchoux includes among the many parallels he draws between the leprosy of rats and man. For in man, too, the disease may be limited to the lymphatic glands, and in the French colonies the bacillus of leprosy has sometimes been found in the lymphatic glands of apparently healthy persons living in contact with definite cases of leprosy. Hitherto experimental cultivation of Hansen's bacillus has seldom, if ever, been successful, but the recent researches of Prof. Marchoux suggest that the anaerobic properties of the lepra bacillus are largely responsible for cultural failures in the past, and that future progress in this direction will depend on appreciation of this fact.

THE LEUCOCYTES IN MEASLES AND SCARLET FEVER.

Dr. H. K. Von Winterfeld and Dr. E. Hahne,[1] of the Rostock University Medical Clinic, examined the blood in 28 cases of measles and seven of scarlet fever, with the following results. In only two cases of measles was there absolute leucopenia (below 4000 leucocytes); normal leucocyte values (4000–8000) were found in 18 cases, and leucocytosis (8000–20,000) in four cases. In other words, the great majority of the cases showed normal leucocyte values, leucopenia was rare, and leucocytosis occurred only in complicated cases. As regards the differential count, of 25 cases of measles investigated 20 per cent. showed lymphopenia (below 20 per cent.), 28 per cent. normal lymphocyte values (21 to 29 per cent.), and 52 per cent. lymphocytosis (over 30 per cent.). Complete absence of eosinophils was found in 24 per cent., normal eosinophil values (1 to 3 per cent.) in 56 per cent., and eosinophilia (4 to 9 per cent.) in 20 per cent. The writers conclude that while the leucocyte values are not characteristic in measles, the presence of leucocytosis in uncomplicated cases contra-indicates measles, and lymphocytosis, as a general rule, is in favour of the diagnosis of measles. While the behaviour of the eosinophils is not characteristic in measles, high values are rare, and the possibility of their being due to intestinal parasites should be borne in mind, especially in children. In almost all the cases of scarlet fever there were leucocytosis associated with lymphopenia and a distinct eosinophilia during the eruptive stage. The eosinophilia persisted well into convalescence, so that in doubtful cases with indefinite desquamation without a history of a rash the combination of desquamation and eosinophilia justified a diagnosis of *scarlatina sine eruptione*. The writers' conclusions as regards the blood picture in scarlet fever are as follows: (1) Leucocytosis points to scarlet fever and against measles. (2) Lymphocytosis points to measles and against scarlet fever. (3) High eosinophilia points to scarlet fever, especially in convalescence, while normal eosinophil values do not exclude measles. (4) The leucocyte picture is of considerable value in the differential diagnosis between scarlet fever and measles, especially as the other signs supposed to be pathognomonic of measles, such as Koplik's spots and the diazo-reaction were frequently absent in the writers' cases.

MODERN MEDICINE IN ICELAND.

The conception of Iceland as a centre of medical science may seem a little startling, for we have been taught to associate this country with volcanoes, fogs, and ice rather than with the modern laboratory and hospital. But a jubilee number of *Laeknabladid*, which celebrates the sixtieth birthday of Prof. G. Magnusson, and which contains 12 original articles, shows that Iceland is not only in close touch with the outside world of medicine, but is also in the van of research. A paper by Dr. A. Arnason deals with the notifications of tuberculosis in a country district in the period 1890–1922, and the earlier date shows that, in the matter of notification, Iceland has been no laggard in the administrative control of tuberculosis. Approximately a quarter of the 102 tuberculous patients had tuberculous parents, and the majority had tuberculous brothers or sisters. One-half of the married tuberculous patients had children suffering from the same disease, but among the 30 married patients there was only one instance of tuberculosis in both husband and wife. At Dr. Arnason's instigation, a veterinary surgeon tested with tuberculin all the cattle (80 to 90) in a parish where the disease was most prevalent, but in no case was a positive reaction obtained. In an anthropological paper by Dr. G. Hannesson, who has carried out certain measurements of 844 Icelanders between the ages of 20 and 40, it is pointed out that the Icelanders are among the tallest people in Europe. All the hardships, poverty, bad housing, and the like, "which we have suffered ever since the country was first inhabited, have not been able to lower our stature. After a thousand years of adversities in darkness and cold on the verge of the Arctic zone the Nordic race still carries its head high and claims kinship with its neighbours on the eastern side of the ocean." A paper on 66 cases of placenta prævia by Dr. G. Thoroddsen is followed by a paper by Dr. G. Claessen on radiography. In a paper by Dr. G. Porsteinsson an account is given of 11 patients suffering from echinococcus of the liver. This would seem to be a common complaint in Iceland, and in another paper on the same subject by Dr. M. Einarsson it is pointed out that echinococcosis is fast disappearing in Iceland, and that for every 100 cases occurring 60 years ago there are now only 15. But there is evidently still much room for improvement, for in the period 1905–1923 he operated on 134 cases. A short paper on leprosy by Dr. S. Bjarnhjedinsson brings out the point that perforation of the palate is not a rare sequel to this disease. A paper by Dr. P. Sveinsson is a plea for influencing the subconscious mind of lunatics and habitual drunkards by means of fasting and drinking hot water, which cause the mind to concentrate on the sensation of hunger, diverting it from morbid notions and the craving for alcohol. This symposium of Icelandic medicine is highly creditable to its authors.

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[1] Klinische Wochenschrift, Oct. 22nd, 1923.

BONE NECROSIS AFTER AVULSION OF THE SCALP.

Dr. Erich Düttmann,[1] of Giessen, reports the case of a child aged 9, who was brought into the hospital with the history that eight days previously she had caught her hair in a machine in her father's mill, with the result that the whole scalp, together with the right ear muscles, were torn off. She was dressed by a doctor with trypaflavine, and this dressing was left in place until she was sent to the hospital. The case is reported to illustrate two methods of treating the necrosis that followed. A month after admission patches of granulations were present, but most of the cranium was uncovered by periosteum and necrosed. As the general condition of the child was very poor, and she complained of severe headache, it was determined to operate. On the left side the necrosed bone was removed with a flat chisel until bleeding points were reached, while on the right side multiple fine holes of 2 mm. diameter were drilled into the bone at a distance of 0·5 cm. from each other until bleeding occurred, care being taken not to injure the dura. Fourteen days later the chiselled portion was almost completely covered with healthy granulations, while on the opposite side granulations were only just beginning to appear out of the drill holes. As the child still complained of headache, and the bone between the holes was very tender, the remainder of the necrosed bone was removed with a chisel five days later. The spongiosa was found infiltrated with pus. After a somewhat stormy course, during which multiple small sequestra were extruded from the drilled side, the skull was eventually covered with granulations in about six weeks, and Thiersch's skin-grafting was performed. The child was discharged with the head finally covered with healthy skin about seven months after admission. In discussing the course of the case, Dr. Düttmann expresses the opinion that the trypaflavine was a contributing cause of the extensive necrosis, and quotes observations that have been made to show the destruction of tissue caused by that substance. The experiment of treating part of the necrosed area with removal by chiselling and part with drilling holes is instructive. The operation of chiselling was easy to carry out and relatively without danger to the patient, and the result in this case was perfect, whereas on the drilled side the procedure was difficult, it took much longer, and there was great danger of boring through the skull and of injuring the dura. The granulations which grew in the drill holes appeared to block the exit of pus from the spongiosa, and convalescence was delayed by the frequent extrusion of sequestra. Dr. Düttmann strongly advises against the method of drilling.

PNEUMOCOCCAL MYELITIS.

In referring last week to the work of the Institut Pasteur on lesions of the nervous system, we called attention to the possibility that certain cases of myelitis might prove to be of infectious origin. In his inaugural thesis Dr. Moïse Zissu[1] considers pneumococcal myelitis, of which he has collected 19 examples from the literature, including two original cases observed in Dr. Lemierre's service at the Andral Hospital, Paris. As regards the ætiology, age plays an important part, for of the 19 cases 13 occurred in adults, three in children, two in adolescents, and one in an old man; 15 were in males and four in females. The attack of pneumonia was severe in the majority of cases. Like the other extra-pulmonary localisations of pneumococcal infection pneumococcal myelitis may precede the pneumonia, develop simultaneously with it, occur at the height of the disease, or first appear in convalescence several days after the crisis. No examples have hitherto been recorded of the occurrence of pneumococcal myelitis, apart from a pulmonary localisation of the infection. Dr. Zissu has drawn up the following classification of the clinical forms of pneumococcal myelitis: (1) Circumscribed lumbo-sacral myelitis, of which there is a mild and a severe form, characterised by paraplegia, sensory and sphincter disturbances, and loss or exaggeration of the tendon and cutaneous reflexes. (2) Disseminated myelitis, in which in addition to the above symptoms there is paralysis in the upper limbs. (3) Meningomyelitis, in which the symptoms of myelitis are associated with signs of meningeal irritation. (4) Poliomyelitis manifested by paralysis and muscular atrophy of the lower limbs. (5) Acute ascending paralysis with or without sensory and sphincter disturbances. (6) Diffuse chronic myelitis, with paresis of all four limbs, contractures, exaggeration of the reflexes and muscular atrophy. Pneumococcal myelitis, though a serious condition, is not so fatal as other forms of infective myelitis. Nine of the 19 cases recovered, and ten died after an illness ranging from five to 25 days.

TOMARKIN'S "ANTIMICROBUM."

Some rather remarkable statistics have recently been published in Italy[2] on the results of treatment of acute pneumonia by a chemical compound produced by Dr. Leandro Tomarkin. The therapeutical product obtained by chemical synthesis, and called "antimicrobum," has a definite composition which is indicated by the name amino-orthobenzoyl-sulpho-isoamylo-hydrocupro-nuclein-formate of soda, and is prepared in two forms, monobasic and bibasic. Both of these are in the form of a greyish-brown powder. The bibasic combination is readily soluble in cold water, sparingly so in alcohol, and insoluble in ether. It is decomposed at a temperature of 50° C., and when heated to 70° C. gives off irritating gases. The monobasic form is insoluble in cold water, ether, and alcohol, and only slightly soluble in warm water. It also decomposes at 70° C. Twenty-five cases of pneumonia, chiefly lobar, treated in the San-Spirito Hospital at Rome during March, April, and May by antimicrobum, gave a mortality of only 4 per cent., whereas 50 patients treated during the same period with the usual symptomatic treatment showed a mortality of 40 per cent. In other wards of the same hospital the mortality was 55 per cent. and 38 per cent. with the usual symptomatic treatment. All forms treated with antimicrobum therapy were favourably influenced by it. The cases included several of exceptional severity, some bilateral with effusion. Usually resolution, either by lysis or crisis, was rapid and the disease presented a very mild course in nearly all cases, complications being rare. The drug appears to have been well tolerated in all cases, and its effect is explained as a combination of antitoxic and anti-pyogenous action, causing a biological transformation of the products of bacterial scission (endotoxins) and decomposing the bacterial toxins by precipitating the nucleo-albumin and altering their physical and biochemical properties so as to render them easily eliminable. It has, moreover, a marked phagocytic action, causing hyperleucocytosis of preponderating mononuclear type, thus mobilising the defensive bodies of the organism. The action of the bibasic combination is mainly antitoxic, while that of the monobasic is specifically bactericidal. This circumstance determines special methods for its administration. Whenever the treatment of pneumonia is commenced early—viz., on the first or second day, when the general toxic symptoms are not as yet much developed —one gelatin capsule of the monobasic antimicrobum is given every two hours. After two days the bibasic combination is given until resolution takes place. Should the treatment be delayed to a later period when general toxic symptoms are manifest, treatment should begin by giving the bibasic combination for one day, followed by the monobasic during the second day, after which the former will be resumed for at least 8–10 days, diminishing the dose by one capsule daily. It would seem that, having regard to the greatly reduced mortality in the observations recorded, compared with other methods of treatment, antimicrobum Tomarkin may prove to be an efficacious remedy for pneumonia, and one simple to administer. Other observations will naturally be required to establish its claims, and arrangements have been made to secure a supply of the drug from Italy for use in the Italian Hospital in London. The results of treatment there will be watched with interest.

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[1] Deutsche med. Wochenschrift, Nov. 16th, 1923.

[1] Thèse de Paris, 1923, No. 91.

[2] Rivista Ospedaliera, August 15th, 1923. Via Ludovisi, Rome.

A REMARKABLE TERATOMA.

We have received from Mr. E. J. Harrison the report of an extraordinary case. He had obtained it from a paper printed in Russian, which had reprinted it from the *Novoe Vremya*, of Belgrade. The report lacks some of those details which would be supplied in a professional description. It is too long to reproduce here, but the essence of it is that a man of 22 had been troubled for nearly 20 years by an increasing swelling in the left side of his abdomen, and, on being operated upon by Prof. Kostitch, two fœtuses were removed by that surgeon from the swelling; one fœtus, 10 inches long, had a head with hair, short thick body, a left hand and a right leg, and possessed two teeth in its mouth; the other, half the size, was rather more incomplete.

There seems little doubt that the condition should be classed among the teratomata as a twin variety of a remarkably high stage of differentiation. Such growths are to be referred to abnormal development of sex-cells, are well known in the ovary, and not rare among tumours of the testis. The degree of developmental progress seems to be the extraordinary feature in this case. The sex of the possessor of a teratoma is of small importance, as the fact already mentioned about testicular tumours is enough to show. The development of the sex-cell is parthenogenetic in that there has not been any apparent syngamy, but a cell is not the less "fertile" because it develops parthenogenetically. It has been found that normal parthenogenesis, such as occurs in some of the crustacea, is autogamous, coming into operation as the result of self-fertilisation by the second polar globule. This is a secondary acquisition, but there can be little doubt that parthenogenesis, using the term in a wide sense, is a faculty inherent in the earliest and most primitive cells; it probably dies out, but it is frequently capable of being waked up before its decease. In this connexion there is an interesting possibility. Among vertebrates in general, at any rate above the cyclostomes, there seems to be a double production of gonocytes not immediately related to one another. The first formation occurs in association with the alimentary tract, and the gonocytes formed here migrate along the mesentery, to reach finally the genital ridges. Many of them disintegrate on the way, and many more seem to miss their goal, and settle down and die in other parts. The relatively few cells that reach the gonad lose their characters and, for the first time, begin to divide. At the same time, the epithelial cells covering the ridge begin to divide rapidly, thus giving rise to the cells of the second batch of gonocytes, among which are the scattered remnants of the first batch. What the difference is, if any, in the final destiny of these two groups of cells remains to be shown. Definite proof of the occurrence of two such batches of gonocytes in man and higher mammals is lacking, but certain observations point towards its truth.

The meaning of such a process is very obscure, but it seems likely that the cells of the first efflorescence are more primitive than the others, and it is at least permissible to speculate on the possibility of their possession of parthenogenetic potentialities. It may be remarked incidentally that they have been seen to exhibit some of the early nuclear phases of maturation-division before degenerating. If gonocytes of the first order are assumed to be more likely to retain parthenogenetic leanings than those of the second, it would seem to be suggested that teratomata might owe their origin most frequently to a gonocyte of the first batch that ought to have disappeared. Such a view, highly theoretical as it is, would at all events give some explanation of extra-genital teratomata, such as the Belgrade case seems to have been. In the absence of an expert report we cannot say where the seat of the tumour may have been, but we are not debarred from hazarding a guess, that it was associated with the original median mesentery or dorsal wall of the cœlomic cavity originally close to this.

KERATODERMA PUNCTATUM.

According to Dr. S. E. Sweitzer,[1] of Minneapolis, who recently reported a case at the forty-sixth annual meeting of the American Dermatological Association, keratoderma punctatum, or punctate hyperkeratosis, of the palms and soles is a rare condition, of which he has found only 18 examples on record. The earliest case appears to be that reported in 1879 by Davies-Colley, who described under the name of "disseminated clavus of hands and feet" a condition of hyperkeratotic lesions on the palms and soles, the lesions being very small and showing cupping or pitting in the centre. In making a diagnosis, clavus, psoriasis, porokeratosis Mibelli, and angiokeratoma must be excluded. The late Sir James Galloway pointed out that a punctate keratosis of the palms and soles might occur in lichen planus, arsenical keratosis, syphilis, keratosis follicularis, linear nævus, and in association with verrucæ planæ. The true keratoderma punctatum does not show a generalised hyperkeratosis, nor any erythema at the edges of the lesions. Several of the cases on record, like that described by Dr. Sweitzer, have a hereditary tendency. Dr. Sweitzer's case occurred in a woman, aged 33, in whom the condition had started in early childhood. The father and one brother were similarly affected. The skin over the general body surface was normal, only the palms and soles being affected. The lesions, which were small, horny, and papular and of a light-yellow colour, and showed slight pitting, were distributed over the thenar eminences, the palms, and palmar surface of the fingers. The soles showed a few scattered lesions on the big toe and ball of the foot. The arch of the foot was comparatively free, except towards the heel, which was studded with small horny yellowish lesions, most of which showed a central depression. Microscopical examination of a punctate lesion removed with a biopsy punch showed that the chief changes were in the horny layer, which was greatly increased in a circumscribed manner without any change in structure. There was no inflammatory infiltration in the corium.

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[1] Archives of Dermatology and Syphilology, November, 1923.

QUOTA OF DOCTORS IN SOUTH AFRICA.

CONSIDERABLE resentment appears to have been caused in medical circles on the Witwatersrand by the appearance in the *Rand Daily Mail* of Nov. 15th of an interview with "a well-known medical man," who is alleged to have said that South Africa could do with five times the number of doctors she has at present—that is, with 10,000 instead of under 2000. In the dorps and villages, so it ran, wealthy practices are crying out for medical assistance, and many places which to-day carry only one medical practitioner could easily support three or four more, and provide them with a fair livelihood. The Witwatersrand Branch of the British Medical Association, whose regular monthly meeting happened to be held on the very day the article was published, took immediate action to prevent these statements gaining credence by passing the following resolution:—

> That the statement attributed to a "leading medical man" published in the *Rand Daily Mail* on Nov. 15th to the effect that South Africa can find remunerative openings for 8000 medical practitioners, is incorrect, misleading, and calculated to do a great deal of harm by encouraging immigration to this country of medical men from overseas, and by encouraging an unnecessarily large number of men in this country to take up the study of medicine. It is the opinion of this branch that South Africa is not at present in a position adequately to support more than the approximately 1800 practitioners it already has, and that, as a matter of fact, many well qualified and competent medical men in South Africa even now find great difficulty in making both ends meet.

A few days after this a letter, published by the journal which first gave prominence to the subject, effectually disposed of any arguments supporting a theory of shortage of doctors in South Africa. This letter was signed by Dr. A. J. Orenstein, who is entitled to speak with some authority on the medical situation in South Africa. He points out that there are in South Africa some 1,700,000 whites and 6,500,000 natives. Most of the natives live in kraals and are semi-savage. Their earning power—expressed in cash—is very low. Their ability to pay for medical attendance is practically nil. The ability of the native population to support medical men in private practice can be considered as negligible. Native medical services have to be provided by the Government, and it will be long before any government is able to provide a greatly increased medical service for natives. The European population of South Africa practically unaided now supports some 1800 practitioners, either directly or indirectly. There is to-day in South Africa one medical man per 1000 Europeans, compared with England 1 to 1000; Germany 1 to 1940; Austria 1 to 2120; France 1 to 2834 (pre-war figures). Dr. Orenstein's considered view amounts clearly to this: that for many years to come South Africa will not be in a position to support more than approximately the 1800 medical men it has now, and medical schools and parents would do well to bear this fact in mind. People in large centres of population are apt to be blinded to the true condition of affairs by observing a few prosperous medical men in their midst. The bulk of the medical men in South Africa earn but a bare living. An advertisement in that country for a full-time medical man at a salary of a thousand or thereabouts brings scores of eager applicants. Would that be the case, asks Dr. Orenstein, if this country had only one-quarter the medical men it actually requires?

We sympathise with the anxiety of medical men in South Africa to prevent further congestion in a professional community which already meets the effective demand, but when we read carefully the article which caused this anxiety we are inclined to doubt whether it is likely to mislead the public. More than two-thirds of its contents are filled with eulogies of the medical school of the Witwatersrand University, and reads more like a patriotic appeal for support of this school than a serious attempt to induce British medical men to come to South Africa in search of an easy livelihood. At any rate, the prompt disclaimers from authoritative sources carry conviction and will prevent men from going to South Africa in the hope of readily establishing a lucrative practice.

THE ANNUAL DINNER OF THE ROYAL SOCIETY OF MEDICINE.

OVER 500 Fellows and Members of the Royal Society of Medicine, out of a roll of 4000 or so, dined together at the Hotel Victoria, Northumberland-avenue, on Tuesday, Dec. 11th. Sir William Hale-White was in the chair, and opportunity was taken to welcome H.R.H. the Prince of Wales as newly elected Honorary Fellow of the Society. Vice-chairmen were the principal office-bearers of the Society along with the representatives of various Sections—namely: Mr. Douglas Gabell (Odontology), Dr. R. J. Reece (Epidemiology), Mr. C. A. R. Nitch (Surgery), Dr. Farquhar Buzzard (Hon. Treas.), Dr. A. M. H. Gray (Hon. Sec.), Sir John MacAlister (Secretary), Mr. W. Girling Ball (Hon. Sec.), Mr. C. H. Fagge (Hon. Treas.), Dr. Robert Hutchison (Medicine), Dr. Cuthbert Lockyer (Obstetrics), Mr. H. J. Banks-Davis (Laryngology), and Sir Layton Blenkinsop (Comparative Medicine). The official guests were the Archbishop of Canterbury, Viscount Haldane, and the Minister of Health. After the loyal toasts had been honoured, the Prince proposed the Royal Society of Medicine. Following the advice of Sir Benjamin Brodie "to abstain from medical politics" he spoke of the merciless law of survival of the fittest in its application to learned bodies and gracefully acknowledged the privilege of belonging to a Society with such an old and honourable tradition. He paid a tribute to the energy and perseverance of Sir John MacAlister in building up the constituent units of the Society into a united whole. Sir William Hale-White, in responding, enumerated the evidences of active life in the Society, the library of which now numbered 120,000 volumes and sent out yearly 3000 parcels of books to Fellows in the country or abroad. The collection of over 4000 medical prints, remounted and catalogued by Dr. Arnold Chaplin, would, he said, soon be accessible for reference. In two directions new ground was being broken: combined meetings of allied Sections and meetings of the whole Society were being arranged for the discussion of topics of more than sectional interest; and a new and active Section of Comparative Medicine had been founded under the presidency of Sir Clifford Allbutt. The toast of "The Guests" was proposed in a racy speech by Dr. Herbert Williamson, to which Lord Haldane and Sir William Joynson-Hicks responded. The latter voiced his satisfaction at the fact that medicine was broadening its scope to take in the diseases of animals. He hoped that help might speedily be given him to deal with the problem of foot-and-mouth disease. The country was paying £70,000 a day for the slaughter of affected animals and a Cabinet Committee had been appointed that very day to consider the very serious situation. A programme of music was provided by Mons. Dore's orchestra, and the success of the evening was largely ascribed to the arrangements made by Mr. Girling Ball.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLIX.—THE TREATMENT OF PROLAPSE.

PROLAPSE is a comprehensive term which covers a variety of lesions differing in their ætiology and pathology. Before its treatment is attempted the practitioner must satisfy himself by careful local examination, vaginal, and also rectal and vesical if necessary, not only that he is actually dealing with a case of prolapse, but which of the following conditions are present:—

(*a*) The anterior wall of the vagina may have prolapsed with bladder (cystocele), or urethra (urethrocele), or both, the uterus itself occupying its normal position. The displacement implies stretching or atrophy of the muscular sheet and fascia supporting the bladder and vaginal wall.

(*b*) The uterus may be retroverted and displaced from above downwards on expulsive effort, owing to relaxation of its parametric supports. This displacement is usually complicated by cystocele. It is important to distinguish between a uterus which is merely retroverted and a uterus which is retroverted and also descends.

(*c*) The vagina may be completely everted, a further stage of (*b*). Complete uterine prolapse or "procidentia" is a hernia through the pelvic floor, facilitated by stretching or atrophy of the muscle in the uterine parametria. The sac of the hernia is constituted by the vaginal walls and the contents by the uterus and its appendages. The anterior vaginal wall contains the prolapsed bladder. The posterior wall frequently involves prolongation and descent of Douglas's pouch. The rectum is not prolapsed.

(*d*) The cervix uteri may be elongated, and hypertrophic, either in its vaginal or supra-vaginal portions or both, without any descent of the uterine body. Elongation of the supra-vaginal portion inverts the vagina from above.

(*e*) The posterior vaginal wall may be adherent to the anterior rectal wall, and prolapsed with a pouch of the anal canal as a "rectocele." The uterus itself is not involved.

Various combinations of these pathological lesions co-exist. Backward displacement of the uterus does not signify prolapse unless it is associated with cystocele and descent of the organ on expulsive effort. In nulliparæ practically the only type of prolapse seen is inversion of the vagina from above, with hypertrophic elongation of the supra-vaginal cervix. In some women with very lax tissues, a general downward displacement of the pelvic floor occurs without any dislocation of its individual units. This appears as a general bulging of the perineum upon downward pressure.

The therapeutics of genital prolapse are best considered under the following sections: (1) Prophylactic, (2) operative, and (3) palliative measures.

Prophylactic Treatment.—The great majority of cases of prolapse are attributable to, and the result of, factors intimately bound up with pregnancy and labour. In the first place, pregnancy too often and too frequently repeated is a fertile source of laxity of the parametrium. Involution is not only confined to the uterus, but also involves the muscular fibres of the pelvic parametric tissues. If involution is excessive and the involuntary muscle of the parametria is replaced by fat or fibrous tissue, tone is lost, and the uterus, whether large or small, tends to prolapse. A heavy bulky uterus dragging upon such weakened supports naturally tends to descend more rapidly, although a small organ is not immune. Similarly a constantly distended bladder under the same conditions produces further dislocation and the formation of a cystocele. Numerous pregnancies and the resumption of hard manual work account for much of the prolapse met with in hospital and panel practice.

Another factor is the application of forceps before cervical dilatation is complete. A great deal has recently been said and thought about the use and abuse of the obstetric forceps, and it is not necessary here to labour the point. All that need be said is that if "high" forceps are applied and traction exerted before the passages are sufficiently dilated, so that the uterus as well as the fœtal head is dragged down, that uterus will surely descend in later years. Subsequent involution can never restore to normal a parametrium artificially stretched to such an extent. The tissues of individuals vary considerably. Some are congenitally strong and withstand trauma both natural and artificial; others are congenitally weak and cannot resist even slight stress; others tear easily and do not stretch, and yet others stretch and do not tear. Inasmuch as it is impossible to foretell the type of masonry with which the human frame is constructed, the obstetrician should, whenever possible, apply patience before forceps.

Finally, the influence of sepsis must not be forgotten. An infected perineal laceration, even if the tear subsequently heals satisfactorily, may lead to adhesion between the walls of the vaginal and anal canals. This is the prime factor, if not the only one, in the production of rectocele. The prevention of rectocele therefore lies in the immediate and accurate suture of perineal tears, and the adoption of antiseptic measures. It is impossible to suture a perineum accurately with the patient lying on her left side. She should be placed in the lithotomy position and the laceration thoroughly exposed. The surface is then cleansed, blood-clot removed, and the vaginal edges approximated. Buried sutures are used to draw together the deep perineal tissues, and so form a good pad of tissue between the vaginal and anal canals. This is the important factor in the prevention of subsequent rectocele. Finally, the skin edges of the perineum are brought together, and the whole thoroughly dusted with some antiseptic powder. A shot in the dark with through-and-through silkworm-gut sutures introduced with the patient in the left lateral position is a rough-and-ready method which may or may not produce an "anatomical" perineum. It certainly does not produce a "physiological" perineum, which permits of the rectal wall sliding upon the vagina during defæcation. The lesson to learn from these various observations is that indifferent midwifery to-day may be responsible for the production of prolapse ten years hence.

Operative Treatment.—Within recent years the tendency has been to relegate more and more the treatment of genital prolapse to the surgeon. There is no doubt that the results of modern surgical technique in this connexion, both immediate and remote, are good. Since the anatomy of the pelvic floor and the supporting structures of the female pelvic organs have been better understood, there has been a reversion from the abdominal to the vaginal route. To-day it is regarded as unnecessary and undesirable to attach a uterus that prolapses to the anterior abdominal wall. It can be cured with less risk to the patient by a vaginal operation. Also it is unnecessary and actually wrong to remove a prolapsed uterus "in toto" unless it is also the seat of some disease calling for hysterectomy. The aim of modern plastic vaginal surgery is to build up and consolidate the atrophied or stretched parametrium, and to maintain the prolapsed viscera in their normal positions. In other words treatment is conservative, and aims at a *restitutio ad integrum* rather than mutilation or the substitution of one disability for another. The older colporrhaphies failed because they were incomplete. The supporting structures of the pelvic viscera were not understood, and false reliance was placed upon the vaginal walls rather than on the underlying parametria and pelvic floor. By adopting the technique described by Fothergill, the "buttress" method of Blair Bell, or the extensive colpo-perineorrhaphy of Archibald Donald, or by a combination of these methods, the surgeon can confidently approach any degree or variety of prolapse.

Experience has proved the value of these methods in patients in whom other pregnancies are anticipated as well as in elderly women. Modern technique has quite replaced such methods of treating prolapse as those described by Le Fort and Schauta operations, which cure by substituting a deformity and which, moreover, are associated with a definite mortality.

Palliative treatment occupies a definite place in the treatment of prolapse. A well-fitting pessary relieves many a patient from her symptoms, and for women who fear or refuse operation, or for whom the latter involves some risk, such treatment is indicated. Furthermore, it is impossible with the hospital accommodation of to-day to deal surgically with all the material presented. It is important to appreciate what a pessary will and will not do. It is useless, for example, to expect relief from a pessary if the lesion consists of hypertrophic elongation of the cervix. Similarly, a pessary is of little or no avail in the treatment of rectocele, advanced cystocele, or complete procidentia. Palliative treatment should be reserved for: (1) Slight or moderate degrees of cystocele; (2) retroversion of the uterus without descent, if it is the cause of symptoms; (3) retroversion of the uterus with descent of moderate degrees; (4) prolapse of the vaginal walls during pregnancy. The treatment of severe and advanced degrees of prolapse calling for much scaffolding in the form of very large pessaries is best conducted by surgical measures.

The mechanical devices in use to-day may be classified under the following headings: (1) Self-retaining "ring" pessaries of the solid rubber, "watch-spring," or rigid vulcanite or celluloid types; (2) self-retaining "oblong" pessaries of the "Hodge" or "Albert Smith" types; (3) self-retaining pessaries of the Simpson "shelf" variety; (4) rubber "ball" pessaries; (5) "cup and stem" pessaries with outside straps; (6) perineal pads. Rubber instruments have the great disadvantage of producing irritating discharges, and require constant attention. Probably the solid rubber ring is the best all-round instrument It is comfortable and easily introduced, but the patient should be examined every two or three months, and must douche at least thrice weekly with some unirritating solution such as normal saline. "Watch-spring" pessaries are dangerous, owing to possible deterioration of the rubber covering. Rigid instruments have the disadvantage of producing vaginal ulceration if too much tension is exerted by their size or atrophy of the vaginal walls in old age. The choice between a "ring" and "Hodge" depends upon the variety of prolapse and the direction in which it is desired to produce tension of the vaginal walls. For uncomplicated cystocele a "Hodge" is often efficacious, without having recourse to either a "cradle" or "ring." In cases of inversion of the vagina from above, it will be obvious that tension must be exerted in all diameters, and therefore a "ring" must be used. Simpson's "shelf" I regard as an abomination. Its only merit is that it is efficacious in keeping a prolapsed uterus in position. Its introduction and extraction can be so painful and distasteful to the patient that a woman tends to leave the instrument in situ until its presence causes pressure symptoms. Museums contain many "shelf" pessaries, which have ulcerated into either bladder or rectum, and which have required removal with bone forceps. Collapsible "ball" pessaries and "cup and stem" instruments are sometimes useful in affording relief to women with severe procidentia where surgical treatment is refused or contra-indicated. Their disadvantages are obvious, and in all cases patients should be instructed not only how to remove them at night, but also how to keep them clean. In those cases where the pelvic floor as a whole descends any pessary is, of course, useless. The only treatment that can be given is support by a perineal pad, apart from the relief afforded by certain douches and local baths at the various spas.

In conclusion, it must be remembered that once pessary treatment is instituted, a woman in nine cases out of ten is condemned to wear an instrument all her life, unless she submits to surgical treatment. Frequently it is necessary to employ larger and larger pessaries, and in the end the patient discovers that she has not avoided but only put off the evil day, and eventually is faced with either operation or the discomforts of an instrument with straps.

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Special Articles.

RADIO-ACTIVITY IN MEDICINE.

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THERE is so much difference of thought and practice about the indications, scope, and methods of application of radio-active substances in medicine that a review of the limited knowledge at our disposal may be of use in clearing the ground. The use of radio-active substances for medical purposes followed soon after the discovery and preparation of radio-active bodies. The home of the discovery in this case was France, where Henri Becquerel discovered that uranium spontaneously emits rays. It has been suggested by Regaud that the therapy in which radio-active substances are used should be known by the name Curie-therapie, thus honouring still further a name which will always be associated with a discovery of far-reaching importance, that of radium, a substance about two million times as active as uranium.

For the physicist there are two essential conditions that must be satisfied before a substance is admitted into the circle of radio-activity. One is that it must spontaneously emit rays, and the other that it must no less spontaneously change into some other substance. The rays from a few radio-active bodies have not been isolated; pending this they are called "rayless." The word spontaneous has especial weight in this connexion, for while there are many ways known by which substances may be *made* to emit rays, there is no chemical method by which the atoms of any element may be changed into another. This is the natural course of events in radio-active elements, of which there are now about 40 known. Of late years a physical method has been developed by Rutherford which does in certain instances appear to dislodge a fragment from the very interior (or nucleus) of the atom; this fragment is a hydrogen atom, which comes out at a great speed, and so we may look upon a stream of these atoms as a form of radiation strictly analogous to the alpha rays which come out at great speed from many radio-active bodies. It must be admitted that on a very restricted scale bodies can be made radio-active, but it is a very remote possibility that the natural product will ever have to give way to the manufactured article.

Local and General Action.

None of the effects which the rays from radium have upon man and the lower animals have received so little attention as the physiological ones. The subject is one which simply cries out for investigation, but the literature on the subject reveals how little is known. Yet the general effects of these radiations upon the body are profound and significant—profound enough to cause death from over-exposure, and significant enough to revolutionise in the future many methods of treatment which are now carried out without the benefit of exact knowledge. It may be regarded as almost certain that, although radium is applied quite locally, some general action always supervenes.

Two experimental facts may be mentioned which show that the general action upon the body may be completely reversed in character according to the degree of irradiation. If a piece of a tumour which has been exposed to a lethal dose is inoculated into an animal, this animal becomes immune to implantation of the same sort of tumour; when an immune condition has been set up in this way it is a very stable state and in most cases lasts the animal's life-time. If such animals are then given a heavy dose of radiation, followed by a tumour implantation, the result is often that the tumour will grow temporarily. On the other hand, if we take some animals which are normally susceptible to these tumours and put them on a course of treatment which consists of very small doses of radiation spread over several weeks or months, and then inoculate tumour into them, the result is that the tumour will not grow so readily as in the normal animal.

Of the purely local action of the rays it will perhaps be enough to say here that detailed histological studies have shown that definite changes occur in the state and structure of cells after irradiation, and that in many cases the degeneration is enough to cause the disappearance of the cells. Other changes appear to be of a much more complicated character, and the early studies of Dominici showed the significant part which the normal and apparently unaffected tissues of the host play in what may be called the sequel to irradiation.

The Criterion of Medical Utility.

Of the two conditions necessary before a body is recognised as radio-active, the important one in connexion with medicine is the emission of rays, the spontaneous change of the atoms of one element into the atoms of another having no medical import. From the medical standpoint the importance of a radio-active body depends on the kind and quantity of the rays it gives out. There are three kinds of rays given out by radio-active substances and they were called alpha, beta, and gamma rays before their true nature was recognised. Some substances emit only one variety, others two and some, as a result of their atomic instability, emit all three. The order of medical utility of these rays is probably in the reverse order from that in which they are mentioned. Gamma rays are transverse vibrations of the ether and have the smallest wave-length known; the shortest of them is about a quarter of the wave-length of the shortest X rays which can be produced at the present day. It is not likely that electro-technicians will be attracted to the problem of producing such very short wave-lengths; their production is more economically left to Nature's workshop. We may mention that some of the gamma rays from radio-active substances have the same wave-length as very hard X rays, and their identity has been firmly established. It must not be concluded that gamma rays of the shortest wave-length have the same physiological actions as X rays, for experiments have shown that X rays of different wave-lengths produce different effects upon animal tissues even though the same amount of energy is expended.

Next in importance come the beta rays, electrons of a speed only a little less than that of light, called rays before their identity with the cathode stream of the Crookes tube was disclosed; and here again we may remark on the fact that the beta rays leave the atoms with a considerably greater speed than can be artificially imposed upon electrons, as in an X ray tube. Though travelling at high speed the beta rays have not much penetrating power; half an inch of tissue would practically quench them. They give rise to an intense local action when an unfiltered source of radium is placed in the body, but this can be avoided by the use of silver or platinum screens.

The alpha rays are atoms of helium; they are very high-speed gas particles which, however, have so little penetrating power that a sheet of notepaper can stop them; their medical use is very limited, though where they do act their effect may be very intense. When judging the medical utility of radio-active substances in a general way the two things to consider are—does it give out gamma and beta rays and does it give them in large quantities? Radium is without doubt the most extensively used radio-active substance in medicine and yet it gives out neither gamma nor beta rays. To explain this paradox we must here make a digression.

The Emanation.

One of the most surprising discoveries in radio-activity was that a "something" was given off by some of these substances which resembled a gas. When Rutherford discovered this was the case with thorium he had natural hesitation in calling it a gas, and in fact he called it an emanation. When Dorn followed up this discovery by showing that radium also liberated a gas, this was called radium emanation. Further researches showed that these emanations were true gases in the ordinary meaning of the word, but they were also radio-active, which distinguished them from the other gases known to the chemist. There is one other emanation known called actinium emanation, but radium emanation is the only one of medical utility. Ramsay suggested that this should be called niton (the shining one), but the original name has generally been maintained, and it does not appear to be too big a strain on general courtesy that the christening name suggested by a discoverer should be accepted by others.[1] The emanation is spontaneously produced from radium. The radium gets used up by this act of production, but only very slowly; an ounce would get reduced to half an ounce, a gramme to half a gramme, a grain to half a grain in about 2000 years. It is to be noticed that whatever quantity may be taken to start with, half of it always gets used up in the same time. This time is called the time-period and the same sort of process runs through all the radio-active bodies. They all have different time-periods and in all cases this term is used to indicate the time taken for one half the quantity present to change into something else. The emanation half vanishes in 3·85 days, it goes on half-vanishing every additional 3·85 days, so that in about a month there will be less than 1 per cent. of what there was to begin with. As it vanishes it emits alpha rays and changes into a substance known as the active deposit.

The Active Deposit.

The active deposit is so-called because it sticks to the surface of things; it is no longer gaseous but solid. It is really a very complicated mixture, the details of which cannot here be dealt with; the important thing about it for our present purpose is that it emits gamma and beta rays in large quantities. Here, then, is the explanation of the paradox, for though radium itself emits none of these rays, its products do. If radium is sealed up in a tube, it at once begins to produce the emanation; this in turn produces the active deposit, which gives the main radiation. Since radium is, practically speaking, a permanent radio-active body, the yield of rays goes on indefinitely and the more radium there is in the tube, the more rays we get from it.

It is, of course, quite a different matter if the emanation is pumped off from the radium and collected in a tube. To do this some radium chloride or bromide is dissolved in hydrochloric or hydrobromic acid and run into a flask which is then sealed on to a mercury pump. As the emanation is produced from the parent substance it is pumped off, purified of any contaminating gases and condensed by means of liquid air into a tube or other device. The volume of pure emanation which one could collect from so large a quantity as 1 gram of radium would not be so much as a cubic millimetre. Hence it is possible to get a very intense radio-active source by condensing the emanation into a minute glass tube; in this case the active deposit will in due course be produced and we shall get the appropriate amount of gamma and beta rays, but it will gradually decline in strength according to the half-value rule mentioned above. Therefore, when the emanation is used medically there is a little more trouble in specifying the actual strength of the source that is used. In this country we generally reckon the

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[1] An International Committee on Chemical Elements, 1923, has recently suggested that radium emanation should be called radon.

average strength of the tube during the time it is used. The French school has adopted a quantity which depends on the number of "millicuries détruits," and although this method has not yet been generally accepted there is something to be said for its adoption. The main idea of the method is based upon the argument that the effective amount of radiation obtained from a tube is proportional to the amount of emanation that is vanishing into the active deposit, and, as the emanation unit is the curie or its fraction the millicurie, the number of these "millicuries détruits" is an indirect measure of the effective radiation employed.

Radio-active Substances other than Radium.

The only substance which emits gamma and beta rays in quantity comparable with that of radium and its products is mesothorium. The gamma rays emitted by this substance are actually a little, but not much, more penetrating than those from radium, and the preparations of mesothorium are sold on the basis of radium standards. A tube of 50 mg. means a tube which gives the same amount of gamma rays as a tube containing 50 mg. of radium, and so on. The price is about one-half that of radium, mainly owing to the fact that the preparations are not permanent; they diminish in strength much more quickly than radium does and so the owner is threatened with severe capital depreciation. The preparations get a little stronger after they have been kept for a time and then they half-vanish in about ten years.

Points in Dosage.

The medical and surgical conditions for which radio-active substances are used include certain forms of malignant disease, some gynæcological conditions, and many varieties of skin affections. There is a large mass of physical data available about the rays and their properties, but it is still difficult to formulate a scheme for the use of the weapon on a strictly quantitative basis. Until such a basis is established it will remain difficult for anyone to describe his methods of using radium in such a way that other people may benefit by his experience. This obstacle cannot be overlooked and there are no successful short cuts to its solution. A typical instance of the short cut is the introduction of the term milligramme hours; this figure is obtained by multiplying the number of milligrammes of radium (or of radium salt) by the number of hours for which it is used. Nothing could be more misleading than such a term, for it is of vital importance to know the actual weight used and the time during which it is applied, and these are frequently not stated by writers. No physician would expect to be taken seriously if he specified the dose of the drug which he had used by such a term as minim months. For surgical use radium is generally sealed in platinum or other metal tubes suitable in size for the amount of radium used, and the statement of dosage must begin with a description of the tube, its length, diameter, thickness of metal, and the quantity of radium it contains, with the further information whether any additional screen was employed. The next step is where the difficulties begin; if three or four of such tubes are inserted into a growth, how can information be set down which will be quantitatively useful? Perhaps the most (and the least) that can be done is to state approximately the size of the growth in question, specify the distances separating the tubes and how far beneath the skin they are placed, and for how long they are left in position. If this is supplemented by drawings to scale, a very valuable amount of information may be got, quite enough in fact for the description of a technique that others may perhaps wish to follow. Something has to be left to the individual even with all this information before him. He has to bear in mind and attempt to visualise the variations in the strength of the radiations from point to point in the tissues, for it is impossible to get uniformity by the means described.

Selective Action.

Were it not for the fact that the rays in passing through the tissues of the body affect some of them more than others there would not be much place for radium-therapy. This selective action lies at the root of the matter, and it has been abundantly proved that in their reaction to radium rays animal tissues form a long series ranging from those which are extremely vulnerable to those which are very insusceptible. If for practical purposes of illustration we fix upon the skin as a type of tissue which is vulnerable to the rays to a medium extent, then on the side of greater vulnerability we should have to put some of the blood cells, cells of the ovary and testicle, and a few varieties of malignant cells, while at the other end of the list, as instances of tissues more resistant to the rays, we should place most varieties of malignant cells, muscle, nerve-tissue, &c.

A great deal of practical interest centres round the degree of selective action that the rays exert upon malignant and normal tissues, for it is more than probable that the series of events following irradiation is determined somewhat by the interplay of forces between them. We may in fact say that the sequel to tumour irradiation depends not only on the dose which it has received, but on the nature and extent of the reaction of the normal tissues of the host. Following the exposure of several varieties of the lower animals to the gamma rays from a large quantity of radium, Lazarus-Barlow has made a detailed study of the degree of selective action exhibited by the normal tissues. His main results are embodied in the Medical Research Council's Special Report Series, No. 62 (1922).

Lethal Action.

The chief aim in using radium in the treatment of malignant disease is to kill the malignant cells with as little damage to the healthy cells of the body as possible. The dose that will just be sufficient to prevent any further growth of cancer cells is called the lethal dose. So it follows that, if the parts of a tumour which actually get the least amount of radiation receive a lethal dose, then, in many cases, other parts receive much more than the lethal dose; in some instances the difference in the amount of radiation may be so great that actual necrosis of the tissue occurs. This is not generally considered good therapy. If less than the lethal dose is given the growth of the cells may temporarily be arrested, but almost inevitably the time comes when they will again become actively dividing and growing cells.

It is a comparatively easy matter experimentally to slow up animal tumours by doses of radiation which are less than a lethal dose, so that they grow at a half, a third, a quarter, or an even smaller fraction of the normal rate of the tumour, although there may still be no recognisable histological change in the cells. If a very small dose is given the question arises as to whether the tumour cells would grow quicker than the normal rate. It has been observed under these conditions that the tumour does grow a little quicker than usual, but it is a very difficult thing to be sure of. The whole question of the stimulating action of radiation is of great importance.

Stimulating Action of Radiation.

Perhaps no aspect of radiation therapy has met with such controversy as that generally included under the term "stimulating action." It is pretty clear that much of this controversy might have been avoided if the single term "stimulation" had not been used to cover a whole lot of phenomena which had little in common with each other. But the term has been dragged in to express equally well what happens if a tumour happens to grow faster after radiation treatment and the earlier hatching out of a batch of irradiated larvæ than the batch of controls. The word has been used with too much latitude, and it seems that as the action of radiation upon cell life yields more and more to experimental treatment, we want more explicit terms to describe the general features of the processes which are being studied. One does not, in fact, have to select such widely different examples as has been done in order to illustrate this point. The necessity is felt even if we restrict our attention to the irradiation of a tumour, for it seems that there are at least two possible ways in which the tumour, being apparently stimulated, might increase (instead of decrease) in size. If a tumour is septic the effect of a moderately big dose of radiation may be that the tumour grows faster than before; it is said to be stimulated. The general argument here could be that the normal tissues are already lowered in tone by the sepsis and, further, by the radiation, and although the tumour cells may have received a dose which under ordinary circumstances would slow them up, the normal tissue factor more than counter-balances this, and the tumour goes ahead. If this is to be considered stimulation, then it must clearly be distinguished from the possible increased rate of growth of individual cancer cells when they received 1 or 2 per cent. of the lethal dose. The importance of studying the normal tissue reaction of the host in radiological problems has not, indeed, received sufficient attention from physiologists.

Radio-activity and Spa Treatment.

It has been pointed out how little is yet known of the general effect even of irradiation carried out by applying tubes of radium or emanation to the surface of the body. What, if any, action is likely to be exerted by radio-active substances as they occur in natural waters remains highly speculative. A natural water rich in radium is still to be looked upon as an extremely weak concentration of radio-active material. It is not generally realised that there are few samples of water which do not show the presence of radium in minute quantities. When J. J. Thomson found radium in the tap-water at Cambridge many years ago this led to a very exhaustive series of measurements of the radium content of spring and river waters and the sea all over the world. It turns out to be, at one and the same time, one of the scarcest and yet one of the most far-flung elements. Some of the springs were found to contain a relatively large amount, not surprising if they are looked upon as collectors, often over large areas. Many spas published accounts of the radium content of their water, and there was a little delicate rivalry about some of the figures. Questions were raised about the possible part that this radium might all the time be playing in the treatment at these centres; suggestions, not perhaps amounting to claims, were made that such quantities of radium probably had a good deal to do with the efficacy of the waters. Others were not unmindful of the high content of other significant salts with which these waters were loaded, and the challenge was made that proof of the radium theory would be easy to establish if it could be shown that distilled water rendered radio-active to the same degree was just as efficacious as that of the waters of the spa itself. I am not aware that the challenge has ever been taken up and the true scientific foundation for spa therapy is still to seek.

MEDICINE AND THE LAW.

A JUDGE UPON EVIDENCE OF INSANITY.

TWO cases were referred to in THE LANCET of Dec. 1st, p. 1206, both tried at the Central Criminal Court, in one of which Judge Atherley Jones bound over an accused to come up for judgment if called upon in order that he might go into an institution, and in the other of which Sir Ernest Wild passed a "hard sharp sentence" in order to "teach" a young woman, who had certainly performed many criminal acts, presumably to live an honest life. In both of the above cases there was medical evidence from prisons where the accused had been confined that they were not certifiably insane but mentally defective. Since their cases were disposed of Mr. Justice Avory has had before him twice a man named Iggulden, and has sentenced him to death for the murder of a woman whom he undoubtedly killed. Iggulden cut the throat of Ethel Eliza Ireland in a taxi-cab, and at once drove to a police-station, told the police what he had done, and gave himself up. Before he was arraigned at the Central Criminal Court, counsel instructed on his behalf submitted that he was not fit to plead or to instruct counsel as to his defence. On this issue Dr. W. N. East, who had him under his charge at Brixton prison, gave a positive opinion that though the prisoner might be able to follow the proceedings, he was not fit to instruct counsel. Dr. East mentioned that Iggulden suffered from delusions, but that he would say nothing about them for fear of being brought in insane. Mr. Justice Avory, addressing the jury, after questioning Dr. East, directed them to bear in mind that "justice had to be administered according to law and not according to the view of medical men." Dr. East had expressed the opinion that the prisoner was able to follow the proceedings. If he could do that, his Lordship said, and if he understood what the witnesses said against him, it was for the jury to judge whether he was not able also to give instructions for his defence. His lordship said that he had observed that the prisoner took a lively and apparently intelligent interest in the proceedings then going on. If the jury were not satisfied that he was insane so as not to be fit to plead, the case would proceed. The jury found that the prisoner was fit to take his trial, and on the next day he pleaded "not guilty," and his trial took place, with the result that he was convicted of murder and sentenced to death. After this the jury recommended the prisoner to mercy, and were told that the recommendation would be duly forwarded to the authorities. For the defence evidence as to the prisoner's mental state had been given, witnesses, who proved that his grandmother on his mother's side was insane and an aunt and a cousin were idiots from birth, being preceded by Dr. East, who expressed the opinion that the prisoner was insane, and did not know that what he was doing was wrong when he killed his victim. Dr. T. B. Hyslop gave evidence to the same effect, and was emphatic in saying that Iggulden had no wish to escape death, and only desired to find a way out of life. This was with reference to a point which evidently weighed with Mr. Justice Avory, and to which he made reference in his summing up, advising the jury to consider that the prisoner knew that the medical men were examining whether he was sane or insane, and to judge whether in those circumstances, with a prospect of escaping death by being found insane, his statements could be relied upon. No doubt more will be heard of the case, and if the Court of Criminal Appeal uphold Mr. Justice Avory's summing up the Home Office authorities will have to consider the question of his sanity before the man can be executed. With regard to Mr. Justice Avory's statement above, that in cases of this kind justice has to be administered according to the law, none will find fault; when he adds that it is not to be done "according to the view of medical men" the question is suggested, "Then why call medical men as witnesses?" Is their evidence to be accepted only when the Judge agrees with it? And is the jury, even with the aid of the Judge, better able to ascertain the mental condition of a prisoner in the dock than medical men with training and experience to qualify them, who are able to examine him and converse with him? A prisoner, sane or insane, admittedly may try to practise deception, but the expert, it is submitted, is vastly better able to judge this than the layman.

ROYAL MEDICAL BENEVOLENT FUND.—A ball in aid of this fund will be held at the Kensington Town Hall on Feb. 5th, 1924, under the auspices of the British Medical Association (Kensington Division). Tickets 1 guinea each, or six for 5 guineas, can be obtained from the Hon. Secretary, Dr. Howard Stratford, 20, Upper Phillimore-place, Kensington, London S.W.

PARIS.

(From our own Correspondent.)

A Proposed Medical Council.

After a long inquiry judgment is about to be passed concerning the scandal of the "medical coupons," on which I commented in my letter of June 16th. Further convictions have been lodged recently in various towns of France and particularly in Paris. It will be remembered that certain officials, doctors, and pharmacists were found to have tampered to their own considerable profit with the vouchers honoured by the State in connexion with the free medical and pharmaceutical treatment of pensioners. The scandal has evoked a feeling of disgust among the medical profession generally, which has been shared by the public, but the public is apt to forget that among the 22,000 doctors practising in France a small proportion only are black sheep whose shortcomings have been emphasised and exaggerated by copy-hunting journalists. Nevertheless it cannot be denied that, besides the scandal of the medical coupons, there have been too many shady practices indulged in for greed of gain; convictions have been lodged for traffic in narcotics and for attempts on the part of proprietors of questionable cliniques to circumvent the law. The time was ripe for reconstruction and the first move was taken by the doctors' syndicate of Toulouse, which, inspired by Dr. Aversenq, proposed to create an Ordre des Médecins which would take on a disciplinary function similar to that of the existing "Ordre des Avocats"—namely, to deal with all professional delinquencies. The principal articles of the suggested council are as follows:—

Art. 3.—Local medical councils would be recognised under the law of May 12th, 1920. Each council would be administered by a committee composed of 6 if it represented 60 registered doctors, 9 for districts where 61 to 100 doctors were registered, 12 where over 100 doctors were registered, 15 where over 200 doctors were registered, and 24 in Paris. The president would have a casting vote. The committee should be elected for three years by ballot, on a clear majority of the votes of the members present, convened in general assembly, a third of its number retiring each year. The committee should elect its president annually.

Art. 4.—The electorate should consist of such doctors as have been in practice for three years in the district. This period should be extended to ten years for the first three years during which the law is in force. Doctors who have practised in the same district for ten years should be eligible for election.

Art. 5.—The committee of a local council should prosecute and punish, on its own initiative or following any complaints lodged, all infringements or errors committed by the doctors inscribed on the register or by their authorised substitutes. According to the extent of the infringement of the rules of medical ethics, the committee of the council could exercise the following disciplinary measures: (*a*) warning; (*b*) censure, with or without black-listing, with or without the suspension of the right to vote or to be elected, for a period not exceeding ten years; (*c*) fine, which may or may not be combined with the preceding penalty; (*d*) permanent or temporary suspension from the performance of any legal, medical, or educational function under State administration, in the departments, the communes, public institutions or in the public services, benevolent or mutual help societies, insurance societies, and so forth; this interdiction would be confined to one district and could only be inflicted for a second or subsequent offence; (*e*) deprivation of the privilege of practising medicine for one year or more; (*f*) erasure from the register. Suspension and erasure should be limited to one district. This penalty could only be applied in the case of a second or subsequent offence after judgment had been passed, in accordance with Art. 25 of the law of Nov. 30th, 1892. The practice of medicine during a period of suspension or after erasure from the register once judgment had been passed would be punishable as illegal practice.

Art. 8.—Petition of appeal against charges of incompetence, exceeding of duty, or violation of the law could be laid before the national medical council.

Art. 9.—There should be a national medical council, sitting in Paris, composed of 19 members. Among them should be the President of the Academy of Medicine, as President and member ex-officio, nine councillors from the Court of Appeal or from the State Council, and nine doctors elected by ballot every three years by the district councils. The national council should be recast every year up to a third of its membership, the districts being called upon in rotation to supply delegates.

The View of the Profession.

This proposal would give to the profession and to the public alike much greater satisfaction than the projected law deposited in the Chambre des Députés in February, 1923, a law which was incompatible with the traditions of liberty and independence of the French medical profession. On the other hand, many doctors are of the opinion that the medical syndicates at present existing could play a much more effective part if given adequate disciplinary powers. However that may be, the medical profession is at present agreed: 1. To strengthen its defence against the intrusion of undesirable elements whose presence would bring into discredit the vast majority of doctors who place their professional honour above every other consideration. Unworthy doctors must be struck off the lists, just as an unworthy priest is unfrocked or a dishonourable officer is cashiered from the army. 2. To create a tribunal of honour embodying the following two principles: (*a*) extension of the powers of the existing syndicates (compulsory enrolment in the syndicates), increased disciplinary powers and their effective application; (*b*) institution of a medical council on the lines of the present proposals or on some other basis. It is recognised that the doctors must take the lead in order that the law may not take the initiative against the profession.

Some decision is, anyhow, to be taken which will mark a new era in the French medical profession and will mean a radical change in existing conditions.

Radiotherapy in Cancer of the Œsophagus.

Dr. Jean Guisez, who has received part of the Prix Montyon from the Académie des Sciences, recently brought before a congress of surgeons a series of cases of œsophageal cancer which have been under his care for over a year. Some of the cases are of three to ten years' standing, yet he states that an apparently complete cure has been obtained. The patients before treatment all showed symptoms of dysphagia, but since the application of radiotherapy Dr. Guisez asserts that deglutition of all types of food has returned to normal, and that examination with the œsophagoscope showed complete disappearance of the tumour. In a few cases the results were obviously merely palliative, but in certain favourable instances the action of the radium was apparently complete and permanent. In all the patients diagnosis was based on endoscopy controlled by a microscopical examination of a section of the tumour. Two factors are necessary for successful application of treatment: (1) the tumour must be carefully defined to ensure the effective placing of the radium tubes, and (2) the lumen must admit a bougie No. 20 or 22, which contains the radium. Dr. Guisez advocates the use of the long bougie. Results have much improved since treatment was continued for longer periods (24 hours with a total of 90 hours) but given in smaller doses divided among several tubes. The platinum tube cases must be very thick, 1 to 1½ mm. Improvement in the patient's condition took place immediately; swallowing, which was previously impossible, became easy, and in many cases these results have persisted for years.

Death of Dr. Paul Oudin and Dr. P. A. Chaslin.

Dr. Paul Oudin (1851–1923) was born at Épinal and was educated in the Medical School of Strasbourg and subsequently in Paris, where he acted as interne des hôpitaux. As a pupil of Claude Bernard, he devoted himself when a young man to the study of the action of electrical currents on the organism. His work turned successively on diagnosis by electrical methods, radiotherapy, and the study of radiodermatoses. He was the first investigator in France to apply radiotherapy to the treatment of uterine hæmorrhage.—Dr. Chaslin (1857–1923), physician to the Salpêtrière, specialised from his student days in mental pathology. His work embraced chiefly semeiology and pathological psychology. He was the author of numerous publications on psychiatry, including treatises on the part played by dreams in the evolution of delirium, the relations of delirium to hallucinations, dementia præcox, and the responsibility of criminals and of the insane. His most important work is incorporated in two text-books, Mental Confusion (1895), and the Elements of Semeiology in Mental Cliniques (1912). By the death of Dr. Chaslin the psychiatric world of France has sustained a great loss, for he was a man who combined deep intuitive knowledge with a keenly developed critical faculty.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Changes in the Workmen's Insurance Act.

A RECENT government ordinance under the Emergency Power Act alters some of the provisions of the workmen's insurance law. The following are the principal provisions affecting the medical profession. A committee is to be formed for the whole Reich, consisting of five medical men, five representatives of the sick clubs, and three non-partisan members, which will be authorised to lay down general rules for the admission of medical men to club practice, for contracts between medical men and clubs, &c. The law provides for local arbitration courts, and a supreme arbitration court for disputes between the clubs and medical men. It has hitherto been a source of dissatisfaction that club patients often asked the club doctor to prescribe medicines where such were not strictly necessary, and that the medical man, to preserve or to extend his club practice, was only too often inclined to comply with the wishes of the patient, to the detriment of the club finances. Any medical man found guilty of doing so may be warned by the club, and when the warning has proved useless he may be struck from the list, even when the contract is still running. The free choice system becomes curtailed by a provision that if the number of panel doctors is greater than one for each 1000 insured, the club board is empowered to decline the admittance of more medical men to the panel. This provision is very hard for those young medical men who are waiting for admittance and are now, perhaps for a lengthy period, excluded from club practice which under present conditions means complete exclusion from medical practice. The actually diminishing numbers of medical students will be still further curtailed by this provision. When no agreement can be arranged between a club and the medical profession, the club is authorised to pay benefit money to its members at a higher rate, the members providing their own medical attendant. According to the old law, when a club had made a contract with a dispensing chemist for the supply of medicine, all the dispensing chemists of the locality had the right of making such a contract and of supplying medicine under its conditions. This provision has been repealed, so that one or more chemists may give credit to a club on the condition that the other dispensing chemists are excluded. A club may henceforth pay an additional sum to its members to buy medicine, when no agreement has taken place between the club and the local pharmacies. But in every case the individual club member is obliged to pay to the chemist 10 per cent. of the costs before the medicine is delivered to him, 90 per cent. being paid by the club. In some clubs —e.g., in the club of the Krupp works, where this procedure has already been voluntarily accepted—the result was that the club has saved about 50 per cent. of the expenses for medicine, the patients, of course, consuming much less medicine and drugs if they have to pay in cash a considerable sum. The provisions of the ordinance have caused great indignation amongst the medical profession, and a general strike is already suggested in medical circles.

Jubilee of the Deutsche Aerztevereins-Bund.

The Aerztevereins-Bund—the union of German Medical Associations—celebrated its fiftieth anniversary this year in Bremen. The union was founded in 1873 in Wiesbaden, where all the local medical associations of practitioners united under the presidency of the late Dr. Graf, a medical member of the German Parliament, who was afterwards elected chairman yearly for 20 years. The aims of the union were of an economic rather than of a scientific nature, medical legislation, hygienic questions, medical teaching, and medical examinations being the principal topics of discussion. Later on, when the sick club question became more and more urgent, the organisation of the union proved too loosely knit to engage in a successful battle. Therefore as early as 1900 a new organisation was founded by the late Dr. Hartmann, of Leipzig, its popular name being the Leipziger Verband. After the death of Dr. Hartmann the new organisation, in honour of its founder, was officially called the Hartmann-Bund. This association, which has local branches in every town and district of Germany, has adopted the methods of the trade-unions by settling with the various clubs tariffs for attendance on club members, collecting a strike fund, and organising strikes if necessary. Originally both organisations were distinctly hostile to the other, but very soon an agreement was established, and now both associations often work together, the strong organisation of the Hartmann-Bund being of great help to the older institution. The unfavourable financial situation of Germany made it impossible to convoke a general jubilee meeting because the expenses for railway fares, hotel accommodation, and so on are much too high for the average medical man and even for the delegates of the local branches. Therefore only the central committee met in Bremen, and, after disposing of current business, celebrated the fiftieth anniversary of the union.

Letters Patent for Dr. Friedmann.

In 1913 Dr. Friedmann, of Berlin, demonstrated before the Medical Society a method to cure tuberculosis by injections of turtle vaccine. His alleged favourable results were much criticised A commission instituted by the Government, under the chairmanship of Prof. Lubarsch, came to no definitive result because the opinions of the members differed too much as to the efficacy of the treatment. Dr. Friedmann had applied for a grant of letters patent for his remedy, although according to the German law a remedy itself can never be patented, a patent being granted only when the method of producing the remedy is new. In this way Ehrlich's salvarsan and Behring's diphtheria antitoxin had been patented. The granting of a patent to Dr. Friedmann had been challenged by some chemical works because, according to some, his method was not new. The Supreme Court of Leipzig has now given a verdict that the patent has been rightly given, and that two chemical works which had illegally produced the vaccine were liable to pay an indemnity. The court stated that Dr. Friedmann's process was quite a new one and that, in the opinion of many authorities, it had proved useful in the treatment of tuberculosis.

Help to the Ruhr Children.

The occupation of the Ruhr has had a bad effect on the children. They could not go regularly to school, the school premises being used as barracks for the occupying forces, while private dwellings often became insanitary through overcrowding. As child mortality and illness increased, many children were sent away to unoccupied Germany. This took place first in a rather unsystematic way, but later a committee was formed, consisting of members of the trade-unions, of benevolent societies, and of the authorities, which took the general organisation in hand. Local committees selected the children for evacuation. A distinction was, of course, made between healthy and weakly children. The healthy children were sent to country districts, where they were likely to receive an abundant supply of food, and where they might engage in some light occupation and attend the local school. The families to which they were sent were chosen by trustworthy persons, clergymen, and others. Not only in Germany, but also in some other foreign countries, Denmark, Norway, Sweden, and Switzerland, the children from the Ruhr were heartily received. Children in the second category were the weakly and the sick; they were selected by the school medical officers, and, with the help of the German Association for the Care of Children, were sent to sanatoriums, health resorts, and spas. Some 40,000 children were in this way taken out of the occupied district for several months, and then a new group was sent in their stead. The medical profession outside the occupied district took a particular interest in helping their professional brethren. The medical press published lists of medical men willing to receive in their homes children of their colleagues in the Ruhr district, in part absolutely free of charge, and in part at exceptionally low rates to cover at least a portion of the expenses which they could not bear alone under the present distressing condition of the profession.

Venereal Clinics.

According to a statistical record published by the German Health Office, there are at present 193 Advisory offices (Beratungsstellen) for venereal diseases in Germany, at which 106,753 patients received advice in the past year. This number has slightly diminished as compared to that of the preceding year, when the offices were frequented by 118,982 patients, of whom 77,307 were found to be infected. Of this number 44,000 were men and 33,000 women. 26 per cent. of the men and 15 per cent. of the women were married. Insurance under the Workmen's Insurance Act covered 62,000 cases.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Dangers of Domestic Electricity.

IN a paper read by Prof. Stephen Jellinek before the Teachers' Society the dangers involved by the extensive use of electricity in every-day life were described with a view to instructing the public on the best means of avoiding these risks. In accordance with an order by the Board of Education, instruction in domestic electricity is now compulsory in elementary schools. Prof. Jellinek pointed out that it was not the high-voltage current only which could be detrimental to the individual as was generally supposed. The ordinary household current of 110–220 volts used throughout the world for heating, lighting, and medical purposes might, under unfavourable conditions, produce a shock capable of causing serious or even fatal effects. If the person is in good conducting circuit with the earth such an occurrence is very likely to happen. Carpets or straw mats are considered a good protection, but if these happen to be wet, then the current can pass through the body. In sculleries, bathrooms, pantries, or cellars, where there are gas pipes, water pipes, or metal stoves, a person handling an electric apparatus or an electric light, always runs a certain risk. Even the touching of a cable of a lift is known to have caused a fatal injury. As the current is generally "earthed" via the legs and feet, the footwear must be carefully attended to by persons exposed to these risks. Wet shoes, or nails on the soles of an ordinary boot, or bare feet, are very dangerous in that respect. But, of course, individual tolerance plays an important part, as does also the psychical condition. An unexpected shock is much more dangerous than one which the person is expecting. Although the effects pass off very rapidly in many cases, it is important to disengage the connexion as quickly as possible, either by switching off the current or by pulling the patient away. In the latter case, the rescuer must be careful to stand on dry objects and to wrap his hand in a dry piece of cloth. If the affected person has stopped breathing artificial respiration must be instituted at once; life has been saved thus in many instances of electrocution. The burns resulting from the passage of electricity through the body are generally more or less painless and heal slowly, whilst nervous disturbances may remain.

Voluntary Workers of Welfare Centres.

A few days ago the second meeting of the above-mentioned social workers took place in Vienna, where some very interesting and useful papers were read. Thus Prof. Zappert emphasised the necessity of reinstating measles, whooping-cough, and epidemic parotitis as notifiable diseases, as thereby an enormous amount of injury to public health would be prevented. Provision for the care of infants and children suffering from epileptic seizures, from feeble-mindedness, and paralysis is quite insignificant in this country, and even more so for individuals suffering from enuresis. A widespread organisation should be instituted for these unhappy children. He also laid stress on the necessity of controlling the excessive indulgence in sports, nowadays so favourite a pastime of our youth. It may be added here that there exists a special "heart dispensary" in Vienna, under Prof. R. Kaufmann, where all members of sporting clubs can be regularly examined. Full records of many of these persons are already stored there. Dr. Moll pointed out that in spite of the sensibly diminishing general mortality-rate of infants in Vienna, the proportion of illegitimate babies is rapidly increasing. He urges the organisation of welfare-centres in the densely populated districts, and the establishment of such centres all over the country, as well as in the cities. Prof. Hamburger discussed the problem of combating tuberculosis in children. He said that infection took place only from man to man; the other possibilities hardly required consideration. In 75 per cent. of cases infection occurs through the family, by parents, other children, or nurses; in the other 25 per cent., through visitors or other household members. The age of the infected child is of utmost importance, the first year of life being the danger period. Hereditary predisposition and insanitary surroundings have much to do with the development of infection. Prof. Hamburger suggests the institution of "preventories," where children of diseased parents could be brought up or protected against infection. Dr. Smola urged the imposition of severe regulations to prohibit the sale of intoxicating liquors to juveniles, and Mr. Braunlich, the head of the Municipal Welfare Centre for Children, explained the measures adopted by the city of Vienna to ensure a stay of four to eight weeks in the country for all children pronounced below par by the municipal school doctors.

Alarming Increase of Criminal Abortion.

In a paper read before the Vienna Medical Society, dealing with the increasing frequency of intentional abortion within the last few years, Prof. Latzko stated that the records of one maternity hospital give a good insight into the actual conditions. Whilst in 1898 the ratio of abortions to births stood at 18·9 per cent., in 1908 it rose to 32 per cent., in 1913 to 57 per cent., and in 1921 it dropped to 44·8 per cent. of all births taking place in that hospital. If, however, we consider separately the married women and the single women, we find that amongst the older married women (over 25 years of age) the average number of abortions is fairly constant (10 per cent.). But amongst the younger women—under 25—the married women showed 30 per cent., the single women 90 per cent. of abortion in the year 1898. Ten years later the figure for the unmarried was 102 per cent., 1913 it was 201 per cent., and in 1921 it was 331 per cent.—i.e., more than three times as many abortions as births. In other words, the overwhelming majority of all abortions in single women must be regarded as intentional or, synonymously, criminal, whilst amongst the married women the ratio of 30 per cent.

has remained fairly constant for years. The social and economic conditions of the population (and not alone in Austria) seem to call for birth control, for it is much better to prevent pregnancy by contraceptive means than to leave the woman to take the risk of what is generally a non-medical attempt at abortion. In this country there is a strong party endeavouring to induce legislation to make artificial abortion before the third month a non-criminal procedure, and to spread the knowledge of contraceptive measures amongst the lower (poorer) classes of the population.

Convention as to Lunatic Persons.

Austria and Sweden have agreed to assist each other in helping to house or treat persons afflicted with mental disease, from one or other nation, by providing that such patients will be received in mental hospitals on the same footing as any native patient. In case such a person has to be sent back to his native country, all medical papers and histories, together with the necessary notes, will be handed over to the proper authorities. All costs and expenses incurred by one country for the subjects of the other are to be refunded in full.

Public Health Services.

SCHOOL MEDICAL SERVICES.

Gloucestershire.

The number of children on the elementary school registers in this county is 41,242; of these 11,744 were examined under the code groups, 10,752 showing defects requiring either treatment or further observation. Among the entrants 4·5 per cent. were found with seriously defective vision, nearly 3 per cent. with external eye disease, 1·5 per cent. with ear discharge, and 20 per cent. with defective conditions of the nose and throat. An effort is being made to deal with the children of pre-school age—a problem which must necessarily find a different solution in urban and rural districts. The nursing staff consists of eight whole-time county health superintendents, whose work includes health and tuberculosis visiting, and 111 district nurses. An important improvement has taken place in the cleanliness of the children, only 40 children being found with pediculi capitis for every 100 found 12 years ago. In addition there is a marked diminution in the degree of infection. Dr. J. Middleton Martin remarks that these results have been obtained only at the expense of a vast amount of work, 53,177 examinations of 43,580 children being made during 1583 visits to 516 departments. It is curious to find that the worst districts in respect of pediculosis are the purely agricultural areas in the north-east of the county; the mining area of the Forest of Dean is an area of low incidence. The new scheme at present provides treatment for school-children, those attending maternity and child welfare, and tuberculous patients. For carrying out treatment three general hospitals, five cottage hospitals, two tuberculosis dispensaries, and one specially constructed wooden building are utilised. The work is done by local practitioners and district nurses, the specialist services of the visiting staffs of the hospitals and of the county tuberculosis officer being available. Of the 11,377 children treated during the year, 7628 came under the local authorities' scheme. The arrangements whereby dental treatment is given on the same day as inspection is working smoothly, and the number of children treated has been doubled under these conditions.

Bootle.

The average attendance here is high, 11,592 out of a school roll of 12,801. Of these, 4023 were inspected in the code groups, and 2386 children were specially examined. At the routine examinations 21·3 per cent. were found without any physical defect, compared with 22·5 per cent. in 1921. Malnutrition accounted for 10·6 per cent. against 7 per cent. the previous year, defective vision for 17·2 per cent., enlarged tonsils for 16·3 per cent., adenoids for 1·5 per cent., and lung disease for 4·8 per cent. Of the entrants examined 54·2 per cent. were referred for treatment. A routine test of hearing by means of the forced whisper at a distance of 20 feet was carried out in all cases except where the noisy condition of the school premises made it impossible. In 2·6 per cent. of the boys and 2 per cent. of the girls the hearing was noted as defective. It would seem doubtful if the results obtained from the application of this rough test to all children are worth the time and energy expended on it. Forty children visited the aural and 177 the throat clinic. Altogether 1556 children made 12,783 attendances at the minor ailment clinic, and 160 children made 2312 attendances at the remedial exercises clinic, where a consulting orthopædic surgeon visits three times a year attended by an orthopædic instrument maker. Last year he examined altogether 72 children, recommending 25 for admission to hospital with a view to operative treatment, 13 for no further treatment, and the remainder for admission to or continuance at the clinic. The 160 patients attending this clinic included 58 mouth-breathers, 25 cases of round shoulders, 29 of infantile paralysis, 3 of rickets, 10 of scoliosis, and 10 recent fractures. Dr. F. T. H. Wood reports that in addition to the three special classes for dull and backward children a fourth has been established for older children, providing altogether for 90 cases. Eleven children from these classes were drafted back to the ordinary school, and 16 were pronounced to be mentally defective.

MENTAL HOSPITALS SERVICE.

By an Act of 1922 the administration of the *Three Asylums in Staffordshire* has been vested in a single authority, which has issued the annual reports of these three institutions in a single volume containing many points of interest. New visiting committees have been appointed, and the fact that two of these are composed exclusively of male members is commented on without approval by the visiting commissioners. The fact that one of these commissioners is herself a woman explains certain recommendations in their report as to the women's clothing, which argue investigations beyond the scope of masculine knowledge and interest. Apart from these criticisms, and certain references to roller-towels and scanty tooth-brushes, the commissioners have no fault to find. As regards diet, that at *Burntwood* is particularly commended; dinner in the main dining hall was "preceded by singing grace to an organ accompaniment, and music was continued during the meal." On the other hand, one searches in vain for any reference to the famous orchestra at *Cheddleton;* it is very much to be hoped that this remarkable feature of social life is being maintained in all the vigour which it displayed at the annual meeting of the Medico-Psychological Association held there in 1920.

It is left to the committees of visitors to criticise the state of the fabrics, which is evidently bad in many respects. Repairs have been neglected until not merely repainting but actual replacement has become necessary. In the case of Cheddleton some of the items in this count are startling. "The Nurses' Home, although opened in 1914, has never been painted, nor have the public rooms been furnished." "The need for new farm buildings does not grow less. The present accommodation is insufficient, necessitating an expenditure of £880 per annum on condensed milk, the shippons are dark and insanitary, tuberculosis is rife, and the subsoil is permeated with the filth of generations. The buildings remain a standing disgrace to the local authority." It is quite evident that the Staffordshire County Council must reconcile itself to immediate heavy expenditure in order to restore its property to a condition conforming to pre-war standards. This is a necessity which is being faced in some degree in institutions throughout the country, and no financial advantage appears likely to be gained by any further delay.

Each of these institutions possesses a dentist and a pathological laboratory. Burntwood is also grateful for the relief afforded by the services of a dispenser. A very notable piece of bacteriological work has been carried out at *Stafford*—namely, a determination of the effect of different methods of floor treatment on the bacterial content of the air in a ward. "For every 100 organisms deposited in ten minutes on a certain small area when a ward floor was undisturbed for three hours, 1211 were deposited 15 minutes after sweeping, 1439 after sweeping with damp sawdust and tea-leaves, 228 after polishing, and only 86 after the use of a vacuum dust extractor." The advantage of the latter method is obvious, particularly when the high rate of infection with tuberculosis in asylums is remembered. The rate of mortality from this cause at Stafford has fallen, but, as Dr. B. H. Shaw observes, it is still twenty times that of the general population. He deplores the absence of facilities for isolating tuberculous cases, and, further, the absence of separate accommodation for recent admissions. In patients suffering from severe insomnia the absence of noise is of the first importance, and "under existing conditions the exclusion of noise is impossible."

Considerable trouble has been experienced with the female nursing staff here, as elsewhere. The following observations on this subject, however, read somewhat strangely. "The Ministry of Labour, without actually refusing permits for Danish nurses to enter the country, has raised certain difficulties, in spite of representations being made that the educated class so required cannot under any circumstances enter into competition with English female manual labour." "Good wages, ample liberty, and considerate treatment have so far failed to induce them to forego the temptation of matrimony under circumstances which do not to the onlooker present any compensating advantages." Each of these statements appears to call for some further explanation. An admirable feature at Burntwood is a "Club Ward," confined however, to the male side, where selected patients are allowed special privileges.

In the annual report of the *Derby Mental Hospital* no changes of note are recorded. The superintendent is assisted by only one (temporary) colleague; it is true that much larger institutions than this (409 patients are resident at Derby) are run by a staff of three medical officers, but between three and two there is a difference much greater in asylum practice than in mathematics, and in the more prosperous times, which perhaps lie ahead, these two gentlemen will, no doubt, be grateful for the assistance of a third colleague.

MEDICAL CANDIDATES FOR PARLIAMENT:

SUCCESSFUL AND UNSUCCESSFUL.

THE complete list of medical men entitled to sit in the new House of Commons is as follows:—

Members.	*Constituency.*	*Party.*
Sir George Berry ..	.. Scottish Universities ..	C.
Dr. W. A. Chapple ..	.. Dumfries	L.
Dr. F. E. Fremantle	.. Hertford, St. Albans ..	C.
Dr. L. Haden Guest	.. Southwark, North.. ..	Lab.
Mr. Somerville Hastings	.. Reading	Lab.
Sir Sydney Russell-Wells	.. London University ..	C.
Prof. T. Sinclair ..	.. Queen's University, Belfast	C.
Dr. E. G. Spero ..	.. Stoke Newington.. ..	L.
Dr. J. H. Williams ..	.. Carmarthen, Llanelly ..	Lab.
Lieut.-Col. T. S. Beauchamp Williams.	Lambeth, Kennington ..	Lab.

C., Conservative; L., Liberal; Lab., Labour.

A list of medical candidates is here given, showing the individual position at the poll, and the number of votes registered. An asterisk indicates membership of the last House of Commons, while a dagger sign indicates that the candidate contested this or some other seat at the last general election.

List of Medical Candidates for Parliament.

Constituency.	Name.	Position at poll.	Votes registered.
Universities:			
London.	Sir S. Russell-Wells.*	1	(1) C., 4,037 (2) L., 2,593 (3) Lab., 1,420
Scottish.	Sir George Berry.*	U	—
Queen's, Belfast.	Prof. T. Sinclair.	U	—
London Boroughs:			
Bermondsey, West.	Dr. Alfred Salter.*	2	(1) L., 9,186 (2) Lab., 8,298
Camberwell, North-west.	Dr. H. B. Morgan.†	2	(1) L., 6,843 (2) Lab., 6,763 (3) C., 6,045
Islington, East.	Dr. Ethel Bentham.†	3	(1) L., 10,670 (2) C., 9,038 (3) Lab., 6,941
Lambeth, Kennington.	Lieut.-Col. T. S. Beauchamp Williams†	1	(1) Lab., 8,292 (2) C., 7,782 (3) L., 5,075
Southwark, North.	Dr. L. Haden Guest.†	1	(1) Lab., 7,665 (2) L., 7,303
Stoke Newington.	Dr. G. E. Spero.†	1	(1) L., 8,365 (2) C., 7,264
English Boroughs:			
Birmingham, Ladywood.	Dr. R. Dunstan.†	2	(1) C., 12,884 (2) Lab., 11,330
Brighton (2).	Sir Henry Lunn.	4	(1) C., 30,137 (2) C., 29,759 (3) L., 17,462 (4) L., 16,567 (5) Lab., 9,545 (6) Lab., 9,040
Manchester, Withington.	Dr. Thos. Watts.*	2	(1) L., 13,944 (2) C., 10,026
Newcastle-on-Tyne, North.	Dr. R. W. Simpson.†	2	(1) C., 12,715 (2) L., 6,321 (3) Lab., 5,374
Portsmouth, North.	Dr. O. Gleeson.	2	(1) C., 13,229 (2) Lab., 9,523 (3) L., 3,584
Reading.	Mr. Somerville Hastings.†	1	(1) Lab., 16,657 (2) C., 15,115 (3) L., 5,406
Tottenham, South.	Dr. A. G. Newell.	3	(1) Lab., 10,312 (2) C., 7,687 (3) L., 3,974
Walsall.	Lieut.-Col. A. C. Osburn.	3	(1) L., 16,304 (2) C., 14,141 (3) Lab., 7,007
English Counties:			
Essex, Saffron Walden.	Dr. R. McNair Wilson.†	3	(1) C., 9,652 (2) Lab., 6,398 (3) L., 5,752
Hertford, St. Albans.	Dr. F. E. Fremantle.*	1	(1) C., 11,968 (2) Lab., 6,640 (3) L., 6,469
Lancaster, Newton.	Dr. H. B. Bates.†	2	(1) Lab., 12,492 (2) C., 8,375
Lincoln, Gainsboro'.	Dr. J. E. Molson.*	2	(1) L., 9,694 (2) C., 7,841 (3) Lab., 3,039
Yorks, W.R., Normanton.	Dr. G. B. Hillman.	2	(1) Lab., 15,455 (2) C., 4,365
Wales:			
Carmarthen, Llanelly.	Dr. J. H. Williams.*	1	(1) Lab., 21,063 (2) L., 11,765 (3) C., 5,442
Scottish Counties:			
Dumfries.	Dr. W. A. Chapple.*	1	(1) L., 13,107 (2) C., 11,380
Lanark, Lanark.	Capt. W. E. Elliot.*	2	(1) Lab., 11,384 (2) C., 11,154

U, unopposed.

There are thus ten medical Members to take the place of the twelve medical Members in the last session of Parliament. While this representation of medicine is strong and shared by the three political parties, the absence especially of Captain Elliot and Dr. Salter will be a real loss to the House of Commons, and one which we hope will soon be made good.

A SPECIAL course in Infants' Diseases for medical officers of welfare centres and others will be given at the Infants' Hospital, Vincent-square, Westminster, London, S.W., from Jan. 7th to 19th, 1924, under the auspices of the Fellowship of Medicine. Those taking part in the course will include Drs. W. E. Robinson, Norah Schuster, Eric Pritchard, Bertram Shires, Donald Paterson, Helen Mackay, Amy Hodgson, Vincent Denne, H. MacCormac, and Mr. Tyrrell Gray. Further particulars may be obtained from the Secretary to the Fellowship at 1, Wimpole-street, London, W. 1.

Correspondence.

"Audi alteram partem."

THE SHORTAGE OF NURSES.

To the Editor of THE LANCET.

SIR,—I am writing neither as an official of the College of Nursing, nor as a member of the General Nursing Council for England and Wales, but I was so interested in your article on Nursing Education in America in your issue of Dec. 1st that I should be grateful if you would permit me to offer one or two comments as one specially interested in the system prevailing in this country. I have lived in America and amongst American nurses and seen a fair amount of their hospital training schools, and although I am very willing to concede that we may learn something from America, we are, I think, at this present stage, viewing nursing from a somewhat different standpoint.

With reference to the establishment of a subsidiary service in America, I think I am correct in saying that many leaders of nursing there are viewing the results with anxiety: (1) The separation of the hospital administration from the training school administration would be an obvious improvement. At present the training school administrator is often overburdened, and the educational and personal needs of the nurses in many cases suffer accordingly. (2) I contend that a great deal of routine domestic work might be eliminated, but nursing is not only a dramatic performance of highly skilled treatments, it is the repetition of simple domestic duties performed perfectly and with understanding. This perfection cannot be attained without almost unlimited repetition, and any woman having only "a very brief training in bedside routine" cannot learn in that time to realise its significance. The medical profession may argue that the V.A.D.'s did magnificent work with their short and limited experience. There was the unique impetus of war service behind all their work, and a great number were picked women—the smallest fraction of them continued to nurse after the war, and it is nothing but the discipline of a continued training can make it possible for women to deal with the dullness of mild general sickness. (3) If the medical profession would calculate how much acute illness had been obviated by the skilful care of mild sickness by a well-trained nurse, they would look upon her as a factor in "prevention" as well as "cure." (4) To establish a subsidiary service is to risk in the future the poorer members of the community being nursed by the "aide" or "attendant," and the richer members engaging the skilled nurse.

I think the type of woman a subsidiary service with its limitations is likely to attract will not be the type of woman to answer the requirements of the medical profession, no matter how limited they may be. Unless one is actuated by some "professional" motive, by which I mean a motive of service of a high standard, nursing is often not even pleasurable. I might go as far as saying it is arduous and disagreeable. It is neither when based on knowledge and service. The State is now only requiring that nurses shall be safe to nurse the sick. The standard set by the State can never go far beyond that, because the sick *have* to be nursed, extra qualifications must be obtained after general training.

I should like to recommend that: (*a*) Before establishing a subsidiary service, let us obtain from *reliable sources* the result of the experiment in America. (*b*) Call a conference between leaders of the medical and nursing professions to ascertain the real need. (*c*) Appeal to the Ministry of Health to make a survey of the nursing services of the country, the result of which would be invaluable in arriving at the real nursing needs of the community. (*d*) Reorganise our present system in hospitals with a view to making the training more attractive. At present it is often unattractive to educated women, the initiative and mind of the woman not being allowed sufficient latitude. (*e*) Establish adequate pay and a superannuation scheme for all nurses, which will ensure educated women some provision for their later years.

I am, Sir, yours faithfully,
GERTRUDE COWLIN.

Grove End-road, N.W., Dec. 8th, 1923.

⁂ We are in substantial agreement with the proposals made by Miss Cowlin in the last paragraph of her letter, but since an organised subsidiary service on the lines suggested in the Rockefeller report has not yet been established in America a period must necessarily elapse before its results are available for consideration.—ED. L.

THE IMPORTANCE OF NASAL SINUS INFECTIONS.

To the Editor of THE LANCET.

SIR,—The case of exclusively sphenoidal sinusitis recorded by Dr. W. C. Rivers (cited in his letter in your issue of Nov. 17th) is of great interest and value as showing that a focal pyogenic infection of one of the smaller sinuses may cause just as marked pulmonary and general symptoms simulating pulmonary tuberculosis as may a maxillary or mixed sinus infection. Furthermore, as Dr. Rivers has shown, there are similar cases from sinusitis limited to the frontal or ethmoidal cells.

Dr. A. L. Yates's article and his subsequent letter in your issue of Dec. 1st suggest that it is the pus from the nose running back into the pharynx, &c., which is recovered and coughed up, and which accounts for the wasting and sometimes the febrile reaction. Yet surely it is not the spreading of pus but the spread of infection from the nasal discharge to the larynx, trachea, and bronchi that causes the bronchorrhœa and sputum. Dr. Yates has done good service in directing attention to purulent nasal sinusitis as a cause of simulated phthisis. But as he points out "by anterior rhinoscopy the nose generally appears normal and the airway as a rule is good on both sides," and thus he too finds the sinus cases with relatively scanty intranasal discharge that can only be seen by posterior rhinoscopy are those which cause spreading infection and toxæmia rather than the more typical sinusitis with nasal obstruction and profuse purulent discharge anteriorly and posteriorly.

Provided a sinus infection by pyogenic organisms has been definitely established and persistent, the more profuse the polymorphonuclear lymphocytes and the more active the phagocytosis the less the liability to spreading infection, and conversely with relative paucity of pus cells the greater the liability to the infection spreading. Hence, given such a focal infection, it is the virulence of the infecting organisms rather than the amount of pus present that is the important factor when we come to consider spread of infection. Pus is always present, sometimes obviously, often so scantily that to the naked eye the discharge seems merely mucus by the time it is recovered.

Thus I recommend the routine bacteriological examination of these discharges to confirm or refute the diagnosis. Until the lessons such examinations enforced my attitude was precisely that now adopted by Dr. Yates. If one finds to one's surprise on exploring a sphenoidal sinus in a case of canalicular optic neuritis no obvious pus but a pure culture of pyogenic cocci, and after the washing out and disinfection the visual colour fields, and vision obviously improve and sometimes become normal; if articular fibrositis similarly shows striking improvement under similar circumstances, and these happy experiences are repeated again and again, one realises that it is not only cases where pus is obvious to the naked eye that will benefit by appropriate treatment that Dr. Yates has so well emphasised. But only after years went did I learn to realise that it is the infection, not the pus, that counts and that sometimes the less the pus the more mischievous the infection. I am not referring to slight infections of the sinuses only detectable by microscopical methods and not causing serious symptoms, for many such accidental revelations of organisms being present are really immaterial and they do not warrant operative measures, if only that simple working out often suffices to remove all trace of these slight, transient, and trivial infections.

Yet we have learnt that quiescent, apical, dental sepsis only detectable by radiography may be of greater clinical import than an obviously carious tooth or even an acute periodontal abscess that declares its presence by acute local manifestations.

I am, Sir, yours faithfully,
Patrick Watson-Williams.

Clifton, Bristol, Dec. 10th, 1923.

To the Editor of The Lancet.

Sir,—In his letter commenting upon my article on Unsuspected Nasal Sinus Disease Dr. P. Watson-Williams raises points important for the rhinologist who has to investigate the extent of the sinusitis. The object of my article was to direct the attention of those engaged in general medicine and surgery to various conditions which infections of the nasal sinuses can produce and to emphasise the fact that it is by routine examination alone that we can avoid frequently missing the primary cause. For this purpose I thought it best to quote cases in which the visible pus obtained left no doubt as to the diagnosis. In the diagnosis of sphenoidal sinusitis I have found Dr. Watson-Williams's syringe of great value. But where no macroscopic pus is obtained in the fluid sucked back from the sinus I think great caution should be used in making a diagnosis from the microscopical evidence obtained. No matter what precautions one takes in applying antiseptics to the septic vestibule of the nose it is impossible to avoid contamination of the cannula passed down into the sphenoidal sinus. A rhinitis is often present in these cases, and as the investigation is done in the recumbent position infective material may pass back from the pharynx. A leucocytosis found in the fluid would be good evidence, but a positive diagnosis cannot safely be made from the finding of bacteria unless the film shows large numbers. My personal experience is that maxillary sinusitis is far more common than sphenoidal. I am, Sir, yours faithfully,

London, W., Dec. 10th, 1923. T. B. Jobson.

THE TREATMENT OF LIVER ABSCESS BY ASPIRATION.

To the Editor of The Lancet.

Sir,—In The Lancet of May 12th, 1923, there appeared an article on this subject written by Drs. P. Manson-Bahr, G. C. Low, J. J. Pratt, and A. L. Gregg. I am a Government medical officer working far from any proper hospital and with little in the way of medical equipment. Soon after reading this article I had the opportunity of treating a case of liver abscess on these lines with excellent results. In my experience liver abscess can now be treated in the out-patient department or in a dispensary with even more simple instruments than those of the London School of Tropical Medicine; in some cases not even a local anæsthetic is necessary.

On Sept. 29th, 1923, an adult male came to the dispensary here complaining of abdominal pain and swelling of legs. On examination he was thin, with normal pulse and temperature; the right side of the abdomen was occupied by a tumour, large, round, and tense—looking as though there were a child's inflated football in the abdomen—and reaching well below the umbilicus level. There was also pressure œdema of both legs. On palpation the tumour was tender, and deep fluctuation was felt.

Without employing any local anæsthetic, I passed into the tumour, at its most prominent point in the nipple line just above the umbilicus, the needle ($2\frac{1}{2}$ inches long) of an ordinary exploring syringe (capacity 2 dr.). The needle had to be pushed in right up to the hilt before the abscess cavity was reached, and then typical thick anchovy-paste liver-abscess pus came out under moderate pressure. As it took such a long time to evacuate the pus with this small syringe (I have no Potain's aspirator), by means of a small piece of rubber tubing I connected the needle with a small metal ear syringe of $1\frac{1}{2}$ oz. capacity, and by this means in about half an hour removed 35 ounces of pus. I then injected 1 g. of emetine hydrochloride intramuscularly, and repeated the injection daily for 15 days. I kept the patient under observation, but gave no other treatment.

The patient made a rapid and uneventful recovery. By the end of the first week the liver was three fingers-breadth below the costal margin, and the œdema of the legs had gone. Treatment was stopped on Oct. 13th, the fifteenth day; the liver was then normal and no longer tender, and the patient was putting on flesh. Six weeks later he was quite well.

My experience of the resistance of natives to liver abscess is the reverse of that mentioned in the paper referred to above. I do not see many cases here, and have met with none in Europeans. The case I have narrated must have had his abscess for several months, and was not acutely ill when I saw him. Ten years ago I had a similar case of seven months' history in an educated native. I operated by the transthoracic route, resecting a rib, and the man is now alive and well.—I am, Sir, yours faithfully,

M. C. F. Easmon, M.B., B.S. Lond.,
Medical Officer, Sierra Leone, W. Africa.

Nov. 26th, 1923.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lt. F. G. Hunt to be Surg. Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Lt.-Cols. E. B. Knox and J. Matthews retire on ret. pay.

Capt. A. Rodd, from the half-pay list, is restd. to the estabt.

Capt. W. L. Partridge retires, receiving a gratuity.

TERRITORIAL ARMY.

Capts. R. C. Clarke and O. Teichman to be Majs.
Lt. M. D. Mackenzie is restd. to the estabt.
W. B. McCall and E. L. Hancock to be Lts.

ROYAL AIR FORCE.

Squadron Leader P. T. Rutherford is granted a permanent commission in the rank stated.

J. M. Rourke is granted a short service commission as a Flying Officer.

Cremation in Manchester.—The annual report of the Manchester Crematorium for the year ending in August, 1923, shows that 222 cremations took place as compared with 206 in the previous year and 211 in 1921. Since the opening of the crematorium in 1892 the number of cremations amounts to 3826. In Great Britain for the year just ended the total number of cremations was 1923 against 2058 in 1921–22. In Manchester the cremation fees during the year totalled £1338.

Supply of Insulin in Ireland.—In a letter to the lay press Sir John Lumsden, Vice-Chairman of the Joint Committee of the British Red Cross Society and Order of St. John, announces the steps that are being taken to provide a supply of insulin for poor patients in Ireland. Since the Free State Government finds itself unable to provide any funds at present for this purpose, the Joint Committee has made a grant of £500 and Sir John Lumsden appeals to the public to provide an equal sum. It is calculated that £1000 would provide enough insulin to supply urgent cases for a considerable time. An Irish correspondent informs us that the Connaught Laboratories at Toronto have already promised to supply insulin at very reduced prices for the use of poor patients in hospitals, and the Joint Committee hopes to be able to obtain equally generous terms. In order that the insulin may not be wasted in indiscriminate use and on unsuitable cases, the Joint Committee is establishing a small insulin committee of physicians and others interested to advise as to distribution. It is to be hoped that the sum for which Sir John Lumsden appeals may speedily be forthcoming.

Obituary.

SIR FREDERICK TREVES, BART., F.R.C.S. ENG., M.D., M.CH. (HON. CAUSA), T.C. DUB., LL.D. ABERD.

Sir Frederick Treves, whose death occurred in a nursing home at Lausanne on Dec. 7th in his seventy-first year after a brief illness from peritonitis, was a man of many-sided interests, who enjoyed a great reputation not only as a surgeon, but also as an entertaining writer of books on travel at home and abroad. He was born at Dorchester in 1853 of old Dorset yeoman stock, and after two impressionable years under the tutelage of the Rev. W. Barnes, "the Dorset poet," he entered the Merchant Taylors' School, then in Suffolk-lane in the City. His medical education began at the London Hospital, where he qualified as Licentiate of the Society of Apothecaries, and a year later, in 1875, he obtained his Membership of the Royal College of Surgeons of England, the Fellowship following in 1878.

Happy chance played a large part in selecting the path of Treves's future activities. Though intending to settle down as a general practitioner in Derbyshire, he was induced by a friend on the staff of the London Hospital to take up a hospital career. He obtained the post of surgical registrar at the London Hospital, and from that beginning he rapidly won his way to the highest staff appointments. He took an active share in the management of the medical school and was largely responsible for founding the Students' Union. In 1881 he was appointed Wilson Professor of Pathology at the Royal College of Surgeons, and five years later combined these duties with those of the Hunterian Professor of Anatomy at the same College—a striking testimony to his skill as an anatomist and as a teacher. His Hunterian lectures, based on hundreds of original dissections, shed new light on many hitherto obscure or erroneous anatomical conceptions. A "Manual of Surgical Applied Anatomy," first published in 1881, was translated into several languages and still holds a place in the regard of students. Treatises of a very practical nature followed on scrofula, hæmophilia, and hernia. Treves was one of the pioneers of abdominal surgery; at this time, before the revolution of Lister, an almost virgin field. His essay on Obstruction of the Intestine (1884) gained him the Jacksonian Prize of the Royal College of Surgeons, as well as high commendation from Sir Spencer Wells. Later on came the "Manual of Operative Surgery" and the popular students' handbook of "Surgical Operations." So great in fact was Treves's professional activity as a surgeon, a teacher, an examiner, and a steady contributor to medical literature that at the early age of 45 he found himself compelled to give up hospital practice in the interests of his private patients.

On the outbreak of the South African War Treves was appointed consulting surgeon to the Forces, and took part in the Relief of Ladysmith. Deeply impressed by the lack of efficient medical service in the field—though well-intentioned helpers were numerous enough—he became one of the founders of the British Red Cross Society, and was the first chairman of its executive committee. "The Tale of a Field Hospital" is the poignant story of his experiences in the campaign. Although he never strove for public honours, in 1900 he was appointed surgeon extraordinary to Queen Victoria, and in the following year serjeant surgeon to King Edward, from whom he received the decorations of C.B., K.C.V.O., and G.C.V.O. In June, 1902, shortly before his coronation, King Edward fell seriously ill, the condition being diagnosed as perityphlitis. Surgical interference was advised, and "to Sir Frederick Treves was committed the heavy responsibility of performing the operation."[1] The operation, as is well known, was completely successful, and as a result, Treves's reputation stood higher than ever. He was created a baronet, and his practice became little short of overwhelming. In 1908, although in full vigour, he retired from practice, feeling, doubtless, that he had reached his zenith as an operator. The key to his full and distinguished life might be put in his own words, when delivering his rectorial address at Aberdeen University in 1908: he impressed upon the students that "the real factors in success were health, serviceable knowledge, sympathy and honesty, industry being presupposed."

"H. T.," a life-long friend, writes of him: "Treves was of a nature very precise. His habit of mind was to reduce all subjects to headings, duly numbered, with the result that he often missed the delicate side of things. Nevertheless, this sense of extreme order made him one of the best teachers a medical student could have. He was therefore followed in the wards by a vast crowd, and every case made simple for the ordinary mind. With his operations he was the same—a clear exposition at first, followed by a complete success. His method of teaching was rendered more attractive by a constant flow of sarcasm directed against his dressers or even his house surgeon. At home he lived in the simplest way, everything arranged to allow him the most complete use of his time. He was up very early, doing his writing before breakfast. His happiest days were spent in and on the sea—he held himself the certificate of a master mariner—and there was between him and the sailors and fishermen some natural bond. In earlier times he might have been a great explorer; as it was, a very real gift for exact observation and discovery was turned to other uses, sometimes perhaps to his own regret."

Treves did not retire to idleness, but from 1908 up till the outbreak of the late war, he travelled and wrote widely. His books include accounts of the West Indies, Uganda, Palestine, and Italy. He spent several years at the Thatched House Lodge in Richmond Park, lent him by King Edward, whose close and confidential friend he remained, a friendship which was continued by King George. During the European war Treves again took up the burden of professional life and was appointed President of the Headquarters Board at the War Office. He was also a member of the War Office Sanitary Committee, and he devoted himself to the Red Cross to the point of seriously straining his physical powers. Since 1920 he had lived in France, writing several delightful books, including "The Riviera of the Corniche Road" and "The Lake of Geneva." His last, "The Elephant Man and Other Reminiscences" was reviewed in these columns but recently, and gives an insight into Treves's sympathy and understanding. Anyone who had worked for years, as he did, in a great hospital must have accumulated a store of facts dealing with various aspects of human nature in which the pathetic and the comic were intimately blended; but few, indeed, could put their recollections into print with the blend of humour and charity which characterised this book.

Sir Frederick Treves married in 1877 the youngest daughter of Mr. A. S. Mason, of Dorchester, by whom he had two daughters. The elder is the wife of General Sir Charles Delmé-Radcliffe; the younger died of acute appendicitis. His body was cremated at Lausanne preparatory to burial in this country.

ARTHUR WILLIAM HARE, M.B., C.M., F.R.C.S. EDIN.

ON Nov. 25th, at Gateshead-on-Tyne, the death took place from syncope following pneumonia of Arthur William Hare, sometime professor of surgery at Owens College, Manchester. Born at Darlington in 1861, he was the younger surviving son of the late Mr. Samuel Hare, private secretary to the late Mr. Arthur Pease, M.P. He was educated at Oliver's Mount School, Scarborough, and at Edinburgh University, where he graduated with honours in medicine and surgery in 1882. Subsequently he obtained the Fellowship of the Royal College of Surgeons of Edinburgh by examination. Prior to graduation Mr. Hare had been appointed resident surgeon in Edinburgh Royal Infirmary, and in preparation for the duties of the post he spent six months in the medical schools at Vienna under Prof. Bilroth and Dr. Wölfler. After visiting the surgical clinics of Halle, Leipzig, and Berlin, he returned to Edinburgh and became assistant in the Surgery Department at the University and house surgeon to the Royal Infirmary under the late Prof. Chiene. In 1883 Mr. Hare returned to Berlin at the desire of Mr. Chiene to establish a bacteriological laboratory for observation and research, and by the courtesy of the German Imperial Board of Health officials, he was enabled to study bacterial research in Koch's laboratory. He was elected senior president of the Royal Medical Society, Edinburgh, for the year 1883–84, and in 1885 he published, with the late Prof. G. Sims Woodhead, a work on the ætiology of infective diseases called "Pathological Mycology." In 1886 Mr. Hare was elected a Fellow of the Royal Society, Edinburgh, and in 1888 he was appointed professor of surgery at Owens College, Manchester. He acted as honorary surgeon to Ancoats Hospital, Manchester, and examiner in surgery at Victoria University, but owing to a breakdown in health he resigned these posts in 1893. After travelling for his health in America, Mr. Hare settled at Newquay, Cornwall, where he became widely known as a surgeon. In 1915 he took up a commission in the R.A.M.C., but was forced to resign on account of ill-health some nine months later, and soon afterwards underwent a severe operation at Newcastle-on-Tyne. On recovery he became school medical inspector for the borough of Gateshead, which position he held until his death. Mr. Hare's systematic works included "Cranial Surgery," "Bandaging," and "The Surgical Treatment of Intracranial Tumours," while he contributed articles to THE LANCET,[1] "Chambers's Encyclopædia," and other publications. As a speaker Mr. Hare possessed unusual power, and his integrity of character, his courtesy, culture, and unfailing sympathy endeared him to all with whom he came in contact. His loss will be deeply felt by a wide circle of friends.

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[1] THE LANCET, 1902, ii., 29.

CHARLES ERNEST ASHTON, M.R.C.S. ENG.

Charles Ernest Ashton, who died at Reims on Nov. 24th, was a member of the ancient Lancashire family of that name; he was born on August 16th, 1855, the younger son of Commander Herbert Ashton, R.N., of Hefferston Grange, Cheshire. His father saw much active service afloat between the years 1808 and 1816, being present at the embarkation of Moore's army after the battle of Corunna, the siege of San Sebastian, and the passage of the Bidassoa by Wellington's army, as well as assisting at the cutting out of innumerable brigs in the Bay of Biscay. The son, Charles Ernest, was educated at the Oratory School, Edgbaston, under Cardinal Newman. Later he matriculated at the University of London and became a student at St. Bartholomew's Hospital, where he served as dresser to Mr. Callender, qualifying M.R.C.S in 1881. He spent a good many years in holding resident appointments in this country; he was assistant house surgeon to the Derby Infirmary, house surgeon to the Wolverhampton General Hospital, and resident medical officer for four years to the French Hospital, London; in 1888 he spent nine months in Dublin at the Rotunda Hospital. After this he retired from the practice of his profession and went to live in France, dividing his time between Paris and Nice; he will be much missed by his poorer neighbours, for although he did not engage in practice, he was ever ready to help with advice and gratuitous treatment. His cheerful disposition enabled him to face his last trying illness, of more than 18 months' duration, with unabated courage.

Medical News.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A variety of post-graduate courses have been arranged for January, 1924, and full particulars of each of those mentioned below can be obtained from the Secretary of the Fellowship at 1, Wimpole-street, W. A further course in children's diseases will be given at the Infants Hospital, Vincent-square, from Jan. 7th to 19th. Clinical lectures and demonstrations will be given each afternoon, and in addition visits will be paid to places of interest in connexion with infant welfare work. An intensive course in urology will be given at St. Peter's Hospital for Stone, Covent Garden, from Jan. 7th to Feb. 2nd, inclusive. The course will consist of clinical work and lecture-demonstrations by members of the staff each afternoon, covering all aspects of urinary disease. A course of lectures in the diagnosis and treatment of common diseases of the nervous system will be given at the West End Hospital for Nervous Diseases from Jan. 7th to Feb. 11th in the out-patient department. A series of eight demonstrations in the diagnosis and treatment of the acute infectious fevers will be given by Dr. Frederic Thomson at the North-Eastern Fever Hospital, Tottenham, on Wednesday and Saturday mornings at 11 A.M., from Jan. 9th to 26th.

Dr. Aubrey Montague, chief medical officer, Fiji, has been appointed a member of the executive council of the Colony.

HUNTERIAN SOCIETY.—The second dinner meeting of the Hunterian Society will be held at Simpson's Restaurant, Cheapside, on Dec. 17th, at 7.30 P.M. After dinner a discussion on the Influence of Ductless Glands in Infancy, Middle, and Old Age will be held; the following speakers will take part: (1) General, Dr. Langdon Brown; (2) Infancy and Childhood, Dr. J. H. Thursfield; (3) Middle and Old Age, Dr. Leonard Williams; (4) Psychological, Dr. Crichton Miller.

SOCIETY OF APOTHECARIES: LIVERY DINNER.—This dinner was held in the ancient hall of the Apothecaries' Society on Dec. 4th, the Master, Dr. Thomas Wakefield, presiding. Among the guests were the Medical Directors-General of Navy and Army, the Presidents of the Royal Colleges of Physicians and Surgeons, and the re-elected Member of Parliament for the University of London. The toast of "The Navy, Army, and Air Force" was proposed by the Master and responded to by Vice-Admiral J. Chambers and Sir William Leishman. "The Royal Colleges and the Universities" was proposed by Dr. A. D. Brenchley, Senior Warden, and in response Sir John Bland-Sutton devoted to the consideration of faith in drugs a witty speech in which historical knowledge, business acumen, and professional liveliness were duly blended. Sir Sydney Russell-Wells also replied. "The Society of Apothecaries of London" was proposed by Dr. T. J. Duffield, and responded to by Dr. F. Gordon Brown, Senior Past Master of the Society. Dr. T. Vincent Dickinson, Junior Warden, proposed "Our Guests." The occasion was attended with that genial solemnity and lavish hospitality that distinguishes the society's banqueting and renders public eating something more than a dull though satisfying repast. A programme of music was contributed by Miss F. Holderness, Miss W. Stocken, and Mr. George Ison.

DONATIONS AND BEQUESTS.—The late Miss Margaret Lucy Augusta Boileau, M.B., B.S., of Wymondham, Norfolk, left by will, among other bequests, £200 to the Norfolk and Norwich Staff of Nurses, Limited; £100 to the Norfolk and Norwich Hospital; £100 to the Royal Free Hospital, Gray's Inn-road, W.C.; and £100 to the Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Mr. James Smith, Kelvinside, Glasgow, left £1250 to the Royal Infirmary, Glasgow, to endow a bed in memory of his mother; £500 each to the Western Infirmary, the Victoria Infirmary and the Royal Samaritan Hospital for Women, Glasgow; £300 to the Royal Hospital for Sick Children Glasgow; £250 to the East Park Home for Infirm Children; £200 each to the Royal Maternity and Women's Hospital, and the Association for the Relief of Incurables; and £100 to the McAlpin Nursing Home, Glasgow.—By the will of the late Mr. Willsher Mannering, of Dover, the testator left £1000 to the Royal Victoria Hospital, Dover.—Sir John Bell, a former Lord Mayor of London, has given £1000 to the fund for building a new wing to the King Edward VII. Hospital as a war memorial.

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[1] Cranial Surgery, THE LANCET, 1888, i., 207, 307, 407.

The house and library of the Royal Society of Medicine will be closed from Monday, Dec. 24th, to Thursday, Dec. 27th, both days inclusive.

Chelsea Clinical Society.—A meeting will take place at the Club Room, St. George's Hospital, on Dec. 18th, at 8.30 P.M., when a discussion on the Manipulative Treatment of Joint Diseases will be opened by Mr. Frank Romer.

A conversazione, at which the Prince of Wales will be present, will be held at the Middlesex Hospital on Dec. 18th, from 8.30 to 11 P.M. Scientific exhibits will be on view and demonstrations will be held, and research departments and new laboratories will be open for inspection.

Middlesex Hospital Medical School. — Sir James Kingston Fowler will deliver an Emeritus Lecture, illustrated by cinematograph, to-day, Friday, Dec. 14th, at 3 P.M., in the large lecture theatre of the Medical School. The subject of the lecture will be a Tuberculosis Settlement.

University of Manchester.—Prof. S. J. Hickson, M.A., F.R.S., who has occupied the Beyer Chair of Zoology since 1894, will retire at the close of the present session in September, 1924, under the age limit.

Glasgow Royal Infirmary: the Lister Ward.—At a meeting of the board of management of the infirmary it was decided by a majority to proceed with the demolition of all that portion which remains of the old infirmary buildings. This includes the Lister Ward, the preservation of which has been so strongly urged from many quarters, as reported in our columns recently.

Liverpool Psychological Society.—This society has now been inaugurated under the presidency of Prof. Alexander Mair, of the University of Liverpool, supported by Dr. Betts Taplin as Vice-President, and an influential committee. The society intends to pursue the systematic investigation of the recent developments of the science. Further information can be obtained from the Secretary of the Society, the University, Liverpool.

A Comfort for Invalids.—The combination chair for invalids devised by Sir Charles Brown, F.R.C.S., and briefly described in these columns (July 7th, p. 49) has now been presented by the inventor to the Preston Royal Infirmary, the Preston St. Joseph's Hospital, and to King's College Hospital, Denmark Hill, London, where it can be seen in use.

Small-pox in England and Wales.—The number of cases of small-pox notified in the sanitary areas of England and Wales shows a tendency to rise from week to week. During the week ended Dec. 1st, 45 cases were notified as follows: Derbyshire 12 (Heanor 4, Blackwell R.D. 8); Gloucestershire 13 (East Dean R.D.); Notts 16 (Hucknall 13, Kirkby-in-Ashfield 2, Stapleford R.D. 1); Yorks W.R. 4 (Adwick-le-Street 3, Bentley-with-Arksey 1). It will be noted that a majority of cases are occurring within certain small and restricted areas. Spain is the source of a recently imported case of small-pox in the person of a resident in Wood Green, Middlesex, who had recently been on a business visit to that country. He appears to have contracted the disease there on or about Nov. 22nd, and travelling overland to London reached this country on Dec. 7th. It is hoped that the prompt measures taken will have sufficed to check the spread of infection after his arrival at his home, but there is risk from the fact that, as his eruption came out on his way home and presumably rendered him infectious by the time he reached this country, he may have infected other people met on his journey between his port of arrival and final destination. His case is described as being not severe.

Bath Clinical Society.—A meeting was held at the Royal United Hospital on Dec. 7th, Dr. W. P. Kennedy, the President, being in the chair, when the following cases and specimens were shown:—Dr. R. G. Gordon: Osteitis Deformans and a case of Arthritis treated by Protein Shock. Dr. C. A. Marsh: Diabetes treated by Insulin. Dr. F. G. Thomson: Idiopathic Familial Muscular Atrophy. Mr. F. Fraser: (1) Repair of the Lower Eyelid by Pedicle Flap; (2) Pegging of Hip-joint for Intracapsular Fracture; (3) Elving's Operation of Sympathectomy for Progressive Gangrene of Both Lower Limbs. Mr. C. Terry showed a slide of a mixed-celled sarcoma removed from the sciatic nerve. Dr. Preston King read a paper entitled National Health. He dealt with the defects of the panel system and the necessity of a closer coöperation between the profession and the State in the province of preventive medicine.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, Dec. 17th.

SPECIAL DISCUSSION: at 5 P.M.

On Chronic Abdominal Pain in Nervous Women, to be opened by Dr. Robert Hutchison, followed by Dr. Fairbairn, Dr. James Collier, Dr. Crichton Miller, Dr. E. I. Spriggs, Dr. M. Culpin, and Dr. J. A. Hadfield.

Tuesday, Dec. 18th.

GENERAL MEETING OF FELLOWS: at 5 P.M.

Ballot for election to the Fellowship. (Names already circulated.)

Wednesday, Dec. 19th.

HISTORY OF MEDICINE: at 5 P.M.

Papers:

Mr. A. G. T. Fisher: The History of Internal Derangements of the Knee-joints.

Mr. Warren R. Dawson: A Contribution to the History of Egyptian Medicine.

Thursday, Dec. 20th.

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.).

Cases:

Dr. G. Pernet: Cheilitis Glandularis (serpiginosa).

Dr. H. W. Barber: (1) Lichen Nitidus; (2) Tuberculides associated with Rheumatoid Arthritis, and Tubercular Peritonitis; (3) A Case for Diagnosis.

Friday, Dec. 21st.

ELECTRO-THERAPEUTICS: at 8.30 P.M.

Papers:

Dr. Ulysses Williams: Fallacy of the Dropped Colon.

Dr. H. A. Harris: Some Problems in Bone Growth.

Dr. R. W. A. Salmond: The Teaching of Normal Radiography and Radioscopy.

HUNTERIAN SOCIETY.

Monday, Dec. 17th.—Dinner Meeting at Simpson's Restaurant, Cheapside. Discussion on the Influence of Ductless Glands. (1) General: Dr. Langdon Brown; (2) Infancy and Childhood: Dr. Thursfield; (3) Middle- and Old-age: Dr. Leonard Williams; (4) Psychological: Dr. Crichton Miller.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Dec. 17th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2 P.M., Mr. Bishop Harman: Eye Dept.

Tuesday.—12 noon, Dr. Burrell: Chest Cases. 2.30 P.M. Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Sinclair: Surgical Out-patients.

Wednesday.—10 A.M., Dr. Saunders: Medical Diseases of Children. 2 P.M., Dr. Burnford: Medical Wards. 2 P.M., Dr. Owen: Medical Out-patients.

Thursday.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simson: Gynæcological Demonstration. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

Friday.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.

Saturday.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Throat, Nose, and Ear Operations.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.

Monday, Dec. 17th.—4.30 P.M., Dr. J. Parkinson: Graphic Methods in Heart Disease.

Wednesday.—4.30 P.M., Concluding Lecture.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.

Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.

Wednesday, Dec. 19th.—6 P.M., Eighth Lecture, Dr. Tredgold: Mental Deficiency.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 18th.—4.15 P.M., Dr. J. M. W. Morison: An Introduction to the Study of Radiography.

UNIVERSITY OF SHEFFIELD POST-GRADUATE LECTURES.

TUESDAY, Dec. 18th.—3.30 P.M., Prof. Douglas: The Pathology of Pneumonia.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.

FRIDAY, Dec. 21st.—(At Boscombe.) Dr. C. E. K. Herapath: Auricular Fibrillation and Flutter.

Appointments.

CAVE, P. N., M.D., B.Ch. Oxf., has been appointed Medical Officer of Health for West Kent.

CONDY, R., M.B., B.Ch. Belf., D.P.H., Assistant Medical Officer of Health for Bury, Lancs.

FORD, A. P., M.R.C.S., L.R.C.P. Lond., D.P.H., Deputy County Medical Officer of Health for Hertfordshire.

FRASER, J. A., M.B., Ch.B. Edin., Assistant Medical Officer at St. Helens.

GAFFIKIN, P. J., M.D., M.Ch. Belf., D.P.H., Medical Officer and Assistant County Medical Officer for the Urban District of Braintree and the Rural Districts of Braintree and Dunmow.

LAWSON, M. A., L.M.S.S.A., Second Medical Officer at St. Mary's Hospital, Plaistow.

LINDSAY, W. J., M.D., B.Ch. Camb., Assistant Surgeon to Out-patients, Royal Eye Hospital, Southwark.

PYE-SMITH, C. D., M.B., B.S. Lond., F.R.C.S. Eng., one of the Medical Referees under the Workmen's Compensation Act for County Court Circuit No. 12, more particularly attached to the Huddersfield County Court.

RANSOM, J. S., Medical Officer and Assistant County Medical Officer for the Urban District of Halstead and the Rural Districts of Halstead and Belchamp.

VLASTO, M., M.B., B.S. Lond., F.R.C.S. Eng., Assistant Surgeon to the Ear, Nose, and Throat Department, West London Hospital.

WILSON, H., M.D., B.S. Lond., Medical Officer of Health for Southwark.

Manchester Royal Infirmary: ROBINSON, G. T., M.B., Ch.B. Manch., House Surgeon; JONES, A. M., M.B., Ch.B. Manch., and APPLETON, J. H., M.B., Ch.B. Manch., House Physicians.

Certifying Surgeons under the Factory and Workshop Acts BARROW, R. M., M.B., B.S. Durh. (Long Sutton); COLLIER, H. E., M.B., Ch.B. Edin. (Redditch).

Vacancies.

For further information refer to the advertisement columns.

Belgrave Hospital for Children, 1, Clapham-road, S.W.—Asst. P. 50 guineas.

Bethnal Green Board of Guardians Hospital. Cambridge-road.—Sen. Asst. M.O. £500.

Birmingham Orthopædic Centre (Ministry of Pensions).—Two Jun. M.O.'s. Each £350.

Bradford Royal Infirmary.—Pathologist. £600.

Bristol General Hospital.—Sen. Res. M.O. £250.

Cancer Hospital, Fulham-road, S.W.—H.S. £100.

Colonial Service, British Guiana.—Three Asst. Govt. M.O.'s. £500.

Dreadnought Hospital, Greenwich.—H.P. £150.

Dudley, Guest Hospital and Dispensary.—H.S. and Asst. H.S.

Dundee Royal Infirmary.—Hon. Asst. Aural S.

Eastbourne, Princess Alice Memorial Hospital.—Res. H.S. £175.

Elizabeth Garrett Anderson Hospital, Euston-road.—Clin. Assts.

Exminster, Devon Mental Hospital.—Third Asst. M.O. £300.

Harefield, Middlesex County Tuberculosis Sanatorium.—Third Asst. Res. M.O. £400.

Hastings, Royal East Sussex Hospital.—Hon. S. and Hon. P.

Hospital for Sick Children, Great Ormond-street, W.C.—Biochemist. £600.

Hull, Victoria Hospital for Sick Children, Park-street.—R.M.O. £100.

London Lock Hospital, 91, Dean-street, W.—Clin. Assistantships.

Loughborough and District General Hospital and Dispensary.—Res. H.S. £175.

Manchester Royal Eye Hospital.—H.S.

Northampton General Hospital.—Hon. Surg. to Ear, Nose, and Throat Department. H.S. £150.

Oldham Royal Infirmary.—Two H.S.'s. Each £200.

Plymouth Royal Eye Infirmary.—Hon. Anæsthetist.

Queen Mary's Hospital for the East End, Stratford, E.—Two H.S.'s. £150.

Royal Army Medical Corps.—Commissions.

Royal Naval Dental Service.—Five Dental Surgeons.

Sheffield Royal Infirmary.—Ophth. H.S. Also Asst. Cas. O. £100.

Tunbridge Wells Eye and Ear Hospital.—Hon. Aural S.

University College Hospital Medical School, W.C.—Radcliffe Crocker Travelling Scholarship in Dermatology. £280.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at St. Helens, Lancs.

Births, Marriages, and Deaths.

BIRTHS.

MOULSON.—On Dec. 7th, at Stone Field, Kidbrook-grove, Blackheath, the wife of Captain Geoffrey Moulson, R.A.M.C., of a daughter.

MARRIAGES.

BLACKWELL—RICE.—On Nov. 28th, at the Minoriten Church, Cologne, Arthur Seal Blackwell, Captain, R.A.M.C., to Mary Georgina Rice, daughter of John Rice, of Fermoy, Ireland.

DEATHS.

BURGESS.—On Dec. 3rd, at Streatham High-road, S.W., William Frederick Richardson Burgess, M.D. Lond., O.B.E., in his 75th year.

SMITH.—On Dec. 6th, at Willow-road, N.W., of pneumonia, John B. Smith, M.A., M.B., Ch.B., aged 74.

TREVES.—On Dec. 7th, of peritonitis, in a nursing home at Lausanne, after a brief illness, Sir Frederick Treves, Bart., G.C.V.O., C.B., aged 70.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Public Companies (Prospectuses) per column line 2*s*. 6*d*.

POSITION PAGES.—Terms on application.

THE *National Institute for Research in Dairying* (University College, Reading) has removed from its temporary premises at 7, Redlands-road, Reading, to Shinfield Manor, near Reading.

THE "MINTITE" PATENT FINISH HOT-WATER BOTTLE.—With reference to the notice of the "Mintite" patent finish hot-water bottle in THE LANCET of Sept. 15th, we are asked to state that manufacturing licensees are attaching a two years' guarantee to these productions. Supplies are now obtainable from many of the principal distributors, including Boots Pure Drug Co., Ltd., and the London Rubber Company's various branches.

Notes, Comments, and Abstracts.

THE LIFE AND TIMES OF WILLIAM CLIFT.[1]

BY SIR ARTHUR KEITH, M.D., LL.D. ABERD.,
F.R.C.S. ENG., F.R.S.,
CONSERVATOR OF THE MUSEUM OF THE ROYAL COLLEGE SURGEONS OF ENGLAND.

[Sir Arthur Keith began by recalling the fact that William Clift, first conservator of the Museum of the Royal College of Surgeons of England, arrived at the house of John Hunter in Leicester-square on Feb. 14th, 1792, his own seventeenth birthday and the sixty-third birthday of John Hunter. It was said that he carried with him certain indentures wherein Hunter had undertaken to teach him "in his best manner," to draw, write, and dissect. The bond between the two men was soon to be broken; Clift had only served his master for 20 months when the catastrophe at St. George's Hospital left him stranded in Hunter's derelict museum. Sir Arthur Keith continued in the following sense:—]

For fifty years William Clift was the honest steward of the great collection which Hunter left behind and the undaunted upholder of his name and fame. There was more than a mere coincidence of birthdays to link these two men together; as Clift aged those who had known Hunter saw in him a remarkable physical likeness to the master. Both were small active men; Hunter's height was only 5 ft. 2 in. To those who insinuated that this likeness was due to more than a coincidence Clift would reply: "If I thought such were true there is not a duke in London I would touch my hat to."

Parentage and Upbringing.

Clift's birthplace was a flour-mill at Bodmin, swept away when the London and South-Western Railway built its station about a mile to the west of the centre of the town. In 1775, when his youngest son William was born, the affairs of the miller, Robert Clift, were hastening from bad to worse; he had to leave the mill, and three years later died in Bodmin at the age of 58, leaving his wife, Joanna Courts, and his amily in poverty. The widow and daughters earned a precarious livelihood by carding and spinning wool in the winter and by working in the fields in other seasons—each member earning from 4*d*. to 6*d*. a day. In 1783, when Clift was 8 years of age, his mother died, and he entered the servfce of Mr. George King, a nurseryman at Bodmin, at 4*d*. a day. Two or three years later, in a drunken fit, King chased his apprentice from the nursery; Clift drew a graphic caricature of the incident, which secured his discharge from the nurseryman's employ. He tried to enlist, and then found service in Bodmin with a farmer and corn-merchant. Here he might have remained, for he had ingrained within him that spirit of timidity and tendency to self-criticism which make men eek for service rather than for command, but often makes uch men the hardest judges of their fellows; but at that ime the Priory near Bodmin Church was occupied by Major Gilbert, whose wife had been at school with Anne Home, John Hunter's wife. They knew at the Priory that Hunter's draughtsman, amanuensis and assistant in the museum, William Bell, had accepted a surgeoncy in Sumatra, and for three years Hunter had found no one fit to succeed him; upon Mrs. Gilbert's recommendation Clift was suddenly transported from a poverty-stricken home in Cornwall to ne of the most remarkable households which London has ever seen.

Hunter's House and Museum.

The household in which young Clift now found himself n inmate stretched from Leicester-square eastwards to Castle-street—now converted into Charing Cross-road. Our intimate knowledge of the shape and size of the establishment we owe to Clift; 40 years after he first entered it, he sat down late at night and drew a ground plan of Hunter's ouse. The property, which Hunter had acquired in 1783, was built on a long narrow strip of ground only 30 feet wide. At the Castle-street end in place of stables was a roomy dwelling where Hunter's five house-pupils had quarters. Here, too, was the dissecting-room, and quarters for Robert Haynes who looked after it, and the lecture-room; here, too, was Clift's abode. In the garden or yard stretching from the one house to the other Hunter had erected a building with an inside measurement 51 feet long and 28 feet wide. The ground floor was divided so as to serve as a reception-room towards the Leicester-square end and a lecture-room towards the Castle-street end. The lofty upper floor of this building served as a museum; round it ran a gallery, on the shelves of which stood Hunter's wonderful collection of physiological preparations—the part of the museum which became Clift's special pride. From the gallery a fossil- or cabinet-room opened off. Between the museum and the house on Leicester-square (No. 28) there was room for the building in which Hunter kept his collection of drawings and prints, and where his artist worked.

Clift found himself a member of a very large establishment. If we include the Earl's Court building, which was really an experimental station run in connexion with Leicester-square, there were 50 people depending on Hunter for their sustenance or pay. For Mrs. Hunter and for Miss Hunter (afterwards Lady Campbell) Clift acquired and retained an unbounded respect and devotion. With regard to the professional activities of the house, it was early in the morning before the professional round commenced, and late in the evening and night after it was finished, that William Clift had his busy time. He had to fetch, carry, inject, draw, display structures with a scalpel, write fair his master's rough notes of dissections, of clinical observations, and of new thoughts and ideas which had occurred in the course of the day's round. During the 30 years Hunter had been researching and building up his museum the subjects of his inquiry were ever broadening, new accounts had to be continually opened in his scientific ledgers, and old general accounts distributed under a series of new headings. Hunter's museum was but a concrete illustration of the contents of his manuscripts.

Mr. Everard Home.

An important inmate of Hunter's household when Clift entered it was Everard Home, brother of Mrs. Hunter and assistant surgeon to St. George's Hospital. Hunter's health had been failing for some years; his arteries had become hard and his heart filled them with difficulty. He had need of assistance; Home lived in and helped him in his operations, did the night work, read his lectures in the class-room in the Castle-street establishment and looked after the pupils. Home was a man of no mean ability; he was recognised by his contemporaries as an excellent practical surgeon and a clear-headed man of business. He was ambitious, particularly for scientific eminence; if only his discoveries had possessed the value he placed on them his career would have been one of unqualified success. His attributes must be borne in mind if we are to understand the relationship which became established between Home and Clift, ending in the tragedy of the manuscripts.

Hunter's Death.

In the spring of 1793 war had broken out with France, and Hunter was busy with his duties to the army. The income of the house was large but the expenditure was lavish. Hunter, to get a supply of ready cash, had been borrowing; he had to accommodate urgent creditors, and Clift had no pay; but Hunter, "probably to avoid having a footman in green found writing with him in his study," provided him with new clothes. With Hunter's death on Oct. 16th, 1793, the great Leicester-square establishment came down with a crash. Mrs. Hunter had to leave the house and for a time her drawing-room was occupied by lodgers. The whole staff was dismissed save two: Mrs. Adams, the housekeeper in Castle-street, and William Clift, who was at first allowed 1*s*. a day board wages to look after the museum—an allowance afterwards commuted to £21 a year. Home sought to continue Hunter's lectures which were given under the museum, but after two years he gave up, for he was an indifferent teacher. Clift attended his second course and tried to take notes from him. The care of the museum devolved on Hunter's executors, Home and Matthew Baillie, both young men struggling for practice. Home was the senior and acting executor. Immediately after Hunter's death he became most prolific in the output of papers—both scientific and surgical. He stepped into Hunter's shoes, attempting to use the museum and Clift's services just as Hunter had done. In the intervals between Home's visits Clift studied the contents of the museum and particularly Hunter's manuscripts; he copied for his own use nearly half of Hunter's writings. During the seven years which followed Hunter's death Clift's salary was £21 per annum. In 1799, when he was 25, he married; he added to his meagre income by copying manuscripts and by drawing for Baillie, whose "Morbid Anatomy" he illustrated, for Monro of Edinburgh, Hey of Leeds, Sir Joseph Banks, and many others. Home got off cheaply; all his drawings, dissections, inquiries, and odd jobs were done for a Christmas box of five guineas, but in 1800, when the museum had passed into the keeping of the College of Surgeons, a new arrangement had to be instituted. Home promised, and Clift expected, that his salary as conservator under the College would be fixed at £100 per annum, but £80 was the sum actually fixed upon. Home undertook to make the deficiency good by purchasing every Christmas £21 worth of 3 per cent. stock and placing it to

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[1] An Abstract of the Vicary Lecture delivered in the Theatre of the Royal College of Surgeons, on Dec. 7th, 1923.

Clift's credit until the capital produced an annual income of £21, a promise which he kept—and in later years claimed thereby to have been Clift's magnificent patron. For this sum Clift supplied his patron with the splendid drawings which adorn a hundred papers published by Home in the Philosophical Transactions, besides those in the great volumes on comparative anatomy; he also carried out investigations and experiments for Home year after year, looked after his papers, and was always at his beck and call.

In 1799, just before the museum passed into the care of the College, Home ordered the manuscripts to be removed from Castle-street. Clift loaded a cart with them and conveyed them to Home's house in Sackville-street.

The Board of Curators.

When the College of Surgeons took over the care of Hunter's museum, the managing body, then known as the Court of Assistants, appointed seven of its number to form a Board of Curators to look after the new charge. In the summer of 1800 the Board met at Castle-street and amongst their instructions to their newly appointed conservator were clauses instructing him to live and sleep in the museum and to accept no gratuities from visitors. Home, although not yet a member of the Court of Assistants, was present at this early meeting and volunteered, with the aid of the conservator, to prepare a complete catalogue of the collection. By 1803 Home had been elected to the Court of Assistants, and was naturally appointed a member of the Board of Curators, thus acquiring a dominant influence in the affairs of the museum. He set Clift to compile catalogues of all sections of Hunter's collection, these catalogues being mere lists of contents, but drawn up with great care and written into folio volumes with meticulous accuracy. Home was too busy looking after his hospital, his practice, and the output of scientific and professional papers to take any part in the work of cataloguing.

The New Museum.

In the summer of 1805 the trustees appointed by Parliament to see that the College of Surgeons carried out the conditions attached to its trust, met for the first time. The trustees inquired about catalogues and about lectures and were told that the College had already spent £2547 on the collection, and that, as the lease of the Castle-street museum was almost up, the College had bought for £4600 Mr. Jenner's house (No. 42), next door to the College House (No. 41), on the south side of Lincoln's Inn Fields, as the site of a new museum. The garden of No. 42 was the actual site on which the new museum was to be built. In the spring and summer of 1806 Clift moved the Hunterian collection from Castle-street and stowed it safely away in the rooms of the museum house, until the new building was erected behind; it was not until 1813 that the museum was finished and opened to visitors. The conservator's chief duty was to conduct visitors round the museum twice daily and explain its contents to them. Of this daily duty Clift never tired.

Meanwhile Everard Home, in 1808, had been appointed Serjeant Surgeon to the King; he was elected in 1811 to give the first course of lectures on Comparative Anatomy. In 1813, having become Master of the College and a baronet, he agreed to publish these lectures and persuaded the Board of Curators to spend College money on their gratis distribution.

The Board of Trustees kept urging the need of supplying proper catalogues for the museum. In 1816 Home claimed the duty and honour of preparing these catalogues, made the conservator rearrange an important section of the museum, and wrote a short guide or synopsis for this section. In 1817 he resigned from the Board of Curators and became elected to the more influential Board of Trustees. He lost no prestige with the Court of Assistants, for in 1821, when this body became known as the Council of the College, they elected him to be their first president.

Burning of the Manuscripts.

In 1823 Home placed certain fossil bones, discovered in caverns near Plymouth, at Clift's disposal. Clift described them in a paper read before the Royal Society; Home championed his election to the Society, and on May 6th, 1823, Clift became F.R.S. The relationship between Home and Clift at this time, as shown in letters, was still that of patron and servant. In July, 1823, Home informed Clift that on the night before the conversation firemen had forced their way into his house because his chimney was on fire; the damage had been done while burning Hunter's papers. "You don't mean," said Clift to the baronet, "you have burned Hunter's manuscripts?" Home said he had done as he said, to which Clift relates that he made this reply: "Then, you may as well set fire to the museum too." Apparently nothing more happened at the time; in November Home was still addressing the conservator as "My dear Clift." At this juncture, August, 1823, Home's co-executor, Dr. Matthew Baillie, died without knowing the fate which had overtaken Hunter's manuscripts.

William Clift Turns on Home.

Clift took an early opportunity of telling the chairman of the Board of Curators, Sir William Blizard, what had happened. Nothing was done then; the first step was taken in February, 1824, when Clift was called in by the Board of Curators, which included Cline, Norris, Astley Cooper, Abernethy (Clift's particular friend), Anthony Carlisle, and Lynn. Clift enumerated the manuscripts, and rightly held them to have been an intrinsic part of Hunter's collection and essential for the preparation of a real catalogue. A month later the Board requested Sir Everard to hand over the manuscripts which they had just learned were, or ought to be, in his possession. Home replied that he had destroyed the manuscripts because they were unfinished and unfit for the public eye; further, he had extracted from them and published all that was essential, and finally, that he had closed his 30 years' executorship by destroying them, which, so he wrote, Hunter had instructed him to do! In the meantime, Clift had learned that there were still some Hunterian manuscripts in existence. To a further demand made by the Board of Curators Home replied declining further correspondence with the Board. The Curators then carried the matter to the higher authority, the Board of Trustees. In May, 1824, the trustees held a special meeting—ostensibly to consider the preparation of proper catalogues for the museum. Home, on being questioned, stated that he had destroyed the manuscripts as a duty, but that he was willing to offer all possible help in the preparation of catalogues. He did help to some extent, for to the next two meetings of the trustees he sent sealed packets which were found to contain series of Hunter's own descriptions of post-mortem examination of cases.

Home died in August, 1832. Clift, in his diary, alleged that the glowing eulogium of Home pronounced at the Royal Society on that occasion was written by the deceased gentleman himself! Six weeks later Home's son handed to Robert Keate, ex-president of the College, a bundle which was found to contain Hunter's famous folio volume on "Vegetation" and also ten separate manuscript fasciculi. Seven years later young Home produced another sealed packet, which contained Hunter's folio volume on "Fossils," wherein we learn that Hunter had been thinking 40 years ahead of the geologists of his time. The open page in the Reynolds's portrait tells us that he was 70 years ahead of his contemporary anthropologists. No further discovery of Hunterian MS. had to be reported.

Clift supposed, and his supposition has usually been accepted, that Home's motive in committing his act of vandalism was to keep the public from discovering how many discoveries and observations he had stolen from Hunter's manuscripts. I do not believe this to be the true reason. In his correspondence with the Board of Curators and trustees he not only admitted but claimed as a merit that he had extracted and published all that was of value in Hunter's manuscripts before burning them! Home was vain, ambitious, extremely conventional and orthodox in his beliefs; Hunter was heterodox, and in his writings were statements which, if published, would have made the hair of the orthodox stand on end. Home declared they were unfit for the public eye, and we may safely infer that he counted Hunter as in error when he was heterodox. Home himself saw the dire fate which overwhelmed William Lawrence when he spoke out his true thoughts concerning man's relationship to animals in the theatre of the College in 1816. Home thought he was doing his old and wayward master a true service when he destroyed his unpublished manuscripts.

Conclusion.

In 1827 Richard Owen, only 23 years of age, came to Clift's rescue and showed all the world how a catalogue of a great collection of comparative anatomy should be written. There is no space in which to tell how James Paget came in 1842 to render a similar service for the pathological side of the museum. Richard Owen married Miss Clift; his father-in-law's self-confidence declined as his own grew. Clift's nerve was sapped by the death by accident, in 1832, of his son, whom he had hoped to see as his successor. In 1842 Clift was informed that his salary of £400 per annum was to continue for the rest of his life, that he was to move out of the conservator's quarters in the College, and that Owen was to move in. He retired to Stanhope Cottage, near Mornington-crescent, off the Hampstead-road, and died there in June, 1849, in his seventy-fifth year. His wife died six weeks before him. Richard Owen inscribed on Clift's tomb in Highgate Cemetery: "He carried a child-like simplicity and singlemindedness to the close of a long and honoured career."

CIRCULATION AND ASSIMILATION IN PLANTS.

Sir Jagadis Chunder Bose, F.R.S., director of the Bose Institute, Calcutta, delivered an occasional address before the Royal Society of Medicine on Dec. 6th. The substance of his remarks was as follows :—

The movement of sap inside the tree is invisible, and no accurate means have hitherto been available for the measurement of the normal rate of ascent of sap and how that rate is affected by changes of the environment. I have overcome the difficulty by devising three different types of apparatus by which the normal rate and its modification is determined with the highest accuracy. Strasburger from his experiments imagined that poisoning did not affect the ascent of sap ; hence he inferred that the movement of sap cannot be due to the physiological action of living cells. This view, which found general acceptance, had the most disastrous effect on investigation of this intricate problem. My results completely disprove Strasburger's conclusion. The records obtained by my apparatus show that a complete arrest of ascent takes place under the action of poison. Experiments prove that a definite active tissue extends throughout the length of the tree, the cellular pulsations of which in regular sequence cause by their pumping action the propulsion of sap. In the animal the circulation is maintained by the pumping action of the throbbing heart. Since the mechanism for the movement of sap is essentially similar, the tree may be regarded as possessing an elongated " heart."

The " Heart " of a Plant.

The effects of various agents on the " heart-beats " of the tree and of the animal exhibit most astonishing similarities, of which I shall mention only a few instances. In the case of the animal it is well known that the frequency of heart-beat is quickened under a rise and slowed down under a fall of temperature, till at a sufficiently low temperature the rhythmic activity becomes arrested. Under certain abnormal conditions when the beating of the animal heart is arrested it can be renewed by adequate stimulation. Certain stimulants cause a great enhancement of the pulsatory activity while poisons arrest it. Results in every way parallel to these are observed in the cellular pulsation of the tree. Rise of temperature increasing the pulsatory activity enhances the rate of ascensional movement of the sap. Lowering of temperature, on the other hand, causes a depression of the rate, till at a critical temperature the ascent becomes arrested. A slight rise of temperature above the critical point, however, renews the ascent. Under condition of sub-tonicity the cellular activity and the resulting movement of sap become arrested. Stimulus is now found to revive the activity and renew the ascent. Very striking results are produced by the action of anæsthetics which in a small dose acts as a stimulant. A small dose of ether is thus found to enhance the cellular pulsation and cause a great increase in the rate of ascent. Chloroform causes a preliminary enhancement followed by arrest caused by the toxic effect of a large dose.

The Electric Probe for Record of the Internal Pulsation.

My experiments proved that the movement of sap is maintained by the pulsating activity of certain cells. The next problem was the localisation of the pulsating layer, and to obtain an actual record of the individual pulsation and watch its responsive variations under drugs and other agents. For this we have to get access to the smallest unit of life, the individual cell. But the pulsatory movement of a cell is ultra-microscopic and its detection may well appear to be beyond the range of possibility. This has, however, been accomplished by my electric probe in circuit with a recording galvanometer. The probe is gradually introduced across the tree, its tip thus coming in contact with successive layers of cells. The record thus obtained is thrown on the screen, from which it will be seen that the galvanometer remained quiescent till the probe came in contact with the active layer, whose throbbing pulsations gave rise to corresponding electric pulsations recorded by the galvanometer. In dicotyledenous plants it is the inner layer of cortex which functions as the organ for the propulsion of sap. Moreover, any agent which quickens or arrests the heart-beat of the animal is also found to enhance or inhibit the electric heart-beat of the tree. The fluctuations of the life-activity in the interior of the tree are revealed by the waxing and waning of its pulse-records. We are now in a position to realise the essential similarity of physiological mechanism in the maintenance of circulation in the plant and in the animal.

Assimilation in Plants.

It is through these incessant internal activities that the tree is enabled to raise large quantities of water to a height sometimes as great as 450 feet, as in the giant eucalyptus. The energy for doing this work is in the breakdown of complex chemical substances in internal combustion or respiration. The phenomenon of CO_2 assimilation in plants is of great theoretical interest as an example of the simplest type of assimilation. In normal photosynthesis a certain volume of CO_2 is absorbed and an equal volume of oxygen evolved. Photosynthetic activity may therefore be measured from the rate of absorption of CO_2 or of evolution of oxygen. I devised a photosynthetic recorder, by which the evolution of pure oxygen becomes automatically recorded. The method is automatic and so extremely sensitive that it is possible to measure photosynthetic deposit of carbohydrate as minute as a millionth of a gramme. The extreme sensitiveness and accuracy of the new method has led to the discovery of several important phenomena which otherwise would have been impossible. Stimulation is found to produce characteristic modification in the assimilation. The immediate and concrete demonstration of the effect of minute traces of chemicals—e.g., on assimilation of plants—is of special interest, since it enables us to understand the effects of ultra-measurable quantities of vitamins on general assimilation and of hormones on physiological reaction.

The " Nerves " of a Plant.

The plant is a multicellular organ and hence necessity arises for intercommunication and interaction between more or less distant organs ; this is accomplished in two different ways ; the first is exemplified by the hydraulic convection of liquids carrying chemical substances in solution such as occurs in the circulation of sap. The second mode of intercommunication is the conduction of excitatory change along certain tissues in the plant which function as nerves.

The ultimate result of investigations such as these and others which I have been able to complete is the establishment of the important generalisation of the unity of physiological mechanism in all life. For we find in the plant and in the animal similar contractile movement under stimulus, similar reaction under particular drugs, similar cell-to-cell propagation of pulsatory movement, similar circulation of fluid by pumping action, similar nervous mechanism for the transmission of excitation, and similar reflex movements at the distant effector. The simpler type of plant organisation offers an unique advantage in investigation, the pursuit of which will no doubt lead to the solution of many perplexing problems of animal life.

THE GEOGRAPHICAL METHOD.

Dr. Saleeby has invented a new method of medical research. " Being without patients and laboratories," he writes,[1] " I applied the geographical method." Put more plainly this means that Dr. Saleeby, being without clinical experience (as he himself admits more than once in this book) and without more than the rudiments of pathological knowledge, travels about visiting hospitals, sanatoriums, and laboratories, and picks up stray information here and there. Although Dr. Saleeby describes himself as a life-long student and worshipper of light, it was only two years ago that he discovered that other people had discovered the value of heliotherapy in tuberculosis. Under his very nose, so to speak, Sir Henry Gauvain had practised heliotherapy in this country, and in the same memorable year that the veil of ignorance was lifted from the eyes of Dr. Saleeby by a visit to Leysin, Sir Henry Gauvain published in our columns a paper in which he emphasised the value of heliotherapy as an important adjuvant to the treatment of tuberculosis, but not as a cure for tuberculosis. It is one of the advantages of the geographical method that it enables Dr. Saleeby to describe himself as " the person most responsible for the arrival of the sun cure in England." He is an interesting example of what the psychologists call " projection." He is under the impression that the routine treatment of surgical tuberculosis is by operation, and he projects his own ignorance on to the medical profession. He does not realise that at Leysin, as anywhere else, the principle underlying the treatment is largely rest of the affected part. " The patient is cured by the action of light on the skin " (p. 67). He himself has realised for the first time that the resistance of the patient to the infection is an important factor in the treatment of tuberculosis, and writes as though bacteriologists generally were in the same position. We get this picture of Dr. Saleeby's conceptions before his journey to Leysin : " Is it stupid or, at most, is it merely half and not whole-witted to consider only the toxicity of the guest and not the readiness to be poisoned of the host ? The bacteriologist with one eye looking at the bacteria through the microscope, and *the other shut* is the type and warning of the danger which many of us have not escaped " (p. 39).

From his wanderings Dr. Saleeby returns to London, and now—behold the results of the geographical method which dispenses with patients and laboratories. It has taught him that sunlight cures and prevents tuberculosis. He is aware that this teaching will meet with opposition, but being a practised controversialist he undermines the position of his opponents, saying: "Very formidable vested interests in the knife and the bottle will have to be combated" (p. 105). He demands an inquiry into the physiological action of light, evidently ignorant of the not inconsiderable literature on the subject which already exists. All this set forth in "words of learned length and thundering sound impressed the gazing rustics ranged around." Coincidently the Medical Research Council appointed a committee to investigate this subject. Dr. Saleeby predicts that "from the date of the appointment of the Special Committee, under the chairmanship of Sir William Bayliss, a new chapter in clinical and preventive medicine will be seen to begin."

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[1] Sunlight and Health. By C. W. Saleeby, M.D. London: Nisbet and Co. 1923. Pp. 178. 5s.

The chapters in this book are loosely strung together and appear to have been taken from popular essays and lectures, although that is not clearly stated. In any case the writing is not that of a clinician or a scientist who pledges his reputation for the statements he makes, but that of a journalist whose gift of popular exposition, exercised doubtless with a sincere belief in the truth of what he writes, nevertheless appeals most to the reader who prefers a well-turned phrase to accuracy and to whom a stunt is the breath of life. No responsible person acquainted with the complexity of the problem involved in the ætiology of tuberculosis would be tempted even by the alliterative ring of the word to call it "a disease of darkness" and classify it with rickets. Sir Henry Gauvain states that light by itself does not cure tuberculosis. He looks upon it as an important adjuvant in the treatment. But then he has patients, and is therefore not a true disciple of the geographical method. Surely Sir William Bayliss, who contributes a preface to this book, has not accepted the geographical method as a trustworthy guide? He certainly commits himself to the statement that light can cure and prevent tuberculosis.

Now, light is a powerful weapon in our therapeutic armoury. But it is doing heliotherapy an ill-service to treat light as a patent medicine, and make exaggerated and foolish claims for it. And it is not only foolish, but mischievous to teach that tuberculosis is a disease of darkness and can be cured by light. We associate ourselves with the statement of Dr. F. E. Wynne, medical officer of health in Sheffield, which Dr. Saleeby holds up to ridicule in his book: "No one who has the true interests of our tuberculous population at heart can fail to regret Dr. Saleeby's suggestion that sunshine can cure tuberculosis."

PUBLIC HEALTH IN INDIA.

Hospital and Prison Administration in the United Provinces.

The Civil Hospitals and Dispensaries in the United Provinces numbered 661 at the beginning of 1921; six were closed and five new institutions opened during the year. The patients treated (5,718,724) showed a decrease of 70,207 on the figures for 1920, but were more numerous than in any of the five years preceding. The cases of cholera and dysentery numbered 11,372 and 127,142 respectively, both much in excess of those in 1920; malaria (1,242,208 cases), rheumatism, and venereal diseases showed a considerable decrease. Plague caused 24,009 deaths in the province, a slight decrease on the mortality (24,872) of the previous year; only 16 cases were admitted to hospital, of whom six died. The number of inoculations performed was 14,906, compared with 36,453 in 1920, efforts having been concentrated on an anti-rat campaign. Colonel J. K. Close, I.M.S., Inspector-General of Civil Hospitals for the province, notes in his report [1] that the system of charging patients able to pay has continued to act satisfactorily, and that no complaints have been received as to charges made; the total sum realised was Rs.32,645.

In his report on the administration of the jails [1] in the United Provinces, for 1921, Lieut.-Colonel J. M. Woolley, I.M.S., Inspector-General of Prisons for the province, notes that, on the occasion of the visit of H.R.H. the Prince of Wales, 3804 convicts were released, and that a considerable number were given remission of sentences; but, on account of the admission of a large number of political prisoners, very heavy extra work had been thrown on the department; moreover, the unhealthy conditions during the autumn and widespread epidemic diseases, following a period of intense heat, had a prejudicial effect on the health of the prisoners. The total number of prisoners that passed through the jails during the year was 109,130, as compared with 103,366 in the previous year; the daily average present being 25,164, an increase of 356 over the jail population in 1920. Transportation convicts are now detained in the Central Prisons, consequent on the abolition of transportation; a proposal for a special jail for this class of prisoners is now under consideration. As regards the health of the prisoners, the admissions to hospital were 607·8, the average daily sick 23·5, and the deaths 21·4 per 1000, as compared with 588·6, 22·6, and 17·0 in the previous year; the increase in mortality was chiefly due to pulmonary tuberculosis (79 deaths, compared with 64 in 1920), pneumonia (76 against 63), and heat-stroke (26). This last mortality is unusually high; it occurred throughout the province, mostly in mid-June; in many jails hard labour was curtailed in the middle of the day. There were 47 admissions to hospital for cholera, of which 22 ended fatally. Of the 42,827 convicts discharged during the year no less than 65·83 per cent. had gained weight, and only 9·58 per cent. lost weight. Lieut.-Colonel Woolley notes that "the year has been remarkable for the large number of political prisoners admitted . . . under the Criminal Law Amendment Act. . . . The spirit of lawlessness was noticeable even among ordinary prisoners, and the officials dealt with it firmly and with much tact and patience."

WHAT IS A MOSQUITO?

There has been a widespread idea that a mosquito is a particular species of insect inhabiting the tropics. And this harmful idea the third edition of Mr. F. W. Edwards's admirable little pamphlet on "Mosquitoes and their Relation to Disease" will greatly help to dispel. The pamphlet is No. 4 of an Economic Series issued by the trustees of the British Museum (Natural History) and is designed to be of use to those who visit the museum as well as to a wider public whose safety lies in a knowledge of the life-history, habits, and control of the mosquito. A short bibliography is attached to the pamphlet, the price of which is 4*d*.

THE KIND OF NURSE SHE WANTS.

To the Editor of The Lancet.

Sir,—It is pleasing to know that "A Middle-class Patient" agrees that nurses are entitled to a high standard of comfort. She need not have worried about extra accommodation, as there are visiting nurses in London and other towns in the provinces who would attend to her physical needs once or twice daily for a very moderate fee. These nurses are well trained, and work under the direction of the family practitioner. The patient will find in the Telephone Buff Book the names and addresses of over 200 visiting nurses in London. I am, Sir, yours faithfully,

Christine S. Crawford,
Visiting Nurse.

London, Dec. 8th, 1923.

CROSSED KNEES AND VARICOSE VEINS.

To the Editor of The Lancet.

Sir,—I suggest that one of the earliest factors operating in the causation of varicose veins of the legs is the habit of crossing one knee over the other. I can conceive no position better calculated to retard the normal flow of blood in the superficial veins of the lower extremities. The pressure catches the internal saphenous vein where it passes slightly behind the knee-joint, while the external vein is blocked by the pressure in the popliteal space. No wonder their valves become disorganised in the course of years.

I am, Sir, yours faithfully,

Henry Geo. Dixon, M.R.C.S., &c.

City-road, London, E.C., Dec. 3rd, 1923.

*** The thesis would be strengthened by some evidence that venous compression does actually take place.—Ed. L.

A HANDY TABLE OF FOOD VALUES.

Insulin, however useful it may be, does not, of course, do away with the necessity for dietetic restriction. After the initial fast it is usual to place the diabetic patient upon a diet of about 12 calories to each pound of body-weight, with definite proportions of protein and carbohydrate, fat then being added to make up the proposed total. To carry this out with success requires accurate knowledge of foodstuffs and their caloric values, and Dr. Sinclair Miller and Dr. F. B. Smith, of the Clinical Laboratory, Harrogate, have compiled some useful Tables of Food Values to assist in securing accurate dietetic control. It is obviously desirable to make a patient's diet as variable and attractive as possible within the limits prescribed, and by the use of these tables alternative diets of fixed food value can be arranged in considerable variety. Three tables are given dealing with foods containing chiefly carbohydrates, proteins, and fats respectively, arranged in alphabetical order. In each case the content of the foodstuff in grammes of carbohydrate, protein, and fat, with the total calories, is immediately to be found. The price is 1s., and the publishers Messrs R. R. Browne and Co., Belfast.

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[1] Allahabad: Government Press. 1922

An Address
ON THE
CHRONIC DYSPEPSIAS OF WOMEN.

Delivered at the Annual Meeting of the Norfolk and Norwich Medico-Chirurgical Society.

BY A. J. WALTON, M.S. LOND., F.R.C.S. ENG.,
SURGEON, LONDON HOSPITAL.

IT is becoming more and more evident that the estimation of surgical skill is to be based rather upon the surgeon's knowledge of the type of case on which to operate than upon his method of operating. Almost anyone can, with a little practice, become sufficiently expert to perform complicated operations, but only those who have had wide experience and training can determine when such an operation should be carried out. Nearly all modern disasters of surgery are due not so much to errors of technique as to the fact that a certain operation is performed on the wrong type of patient. If asked what is the type of case which to-day gives me the greatest difficulty in making up my mind whether or not to operate, I have a ready answer. The greater part of my consulting practice is made up of patients, often women, who are suffering from chronic dyspepsia, generally of many years standing, the symptoms of which do not actually fit in with those of any organic disease of the stomach, duodenum, gall-bladder, or pancreas, and yet superficially resemble these conditions. They have also often had a long course of medical treatment with little or no benefit. Two questions at once present themselves: Are such patients suffering from an organic lesion as well as their chronic dyspepsia; and if it be certain that they have no organic lesion, should they be treated by operation? These questions are to-day enormously exercising the medical profession; large numbers of these cases are seen by all surgeons who are doing much work on the abdomen. As I have been for many years devoting considerable attention to this question, and have had an opportunity of watching the results of many forms of treatment in a well-equipped follow-up department, I have arrived at certain conclusions here published. These conclusions, however, are not yet fixed, and it is quite possible that in a few years' time they may alter considerably.

A TYPICAL CASE OF CHRONIC DYSPEPSIA.

I will first describe a typical example of such a case, one which will be widely recognised. The patient, usually a woman between the ages of 20 and 30, seeks advice for long-continued dyspepsia, which, on careful questioning, is found to date back to between the ages of 12 and 15. She will usually state that this has been continuous, but often there are intervals of two or three days' relative freedom. Even during these periods she will have to exercise care in her diet or the symptoms will return. In later years they have progressed and become much more severe, until she is no longer able to lead a normal life, to take a natural diet, or to perform her usual duties. Her chief complaint will be of severe pain, usually commencing in the epigastrium and passing round to the back. It is increased by food and usually comes on shortly after the ingestion of a meal, so that not only has she modified her diet considerably, but in many cases has cut it down to a minimum and has therefore lost considerable weight. As a general rule the pain is increased by exercise, is worse at the end of the day, and is sometimes relieved by lying down. In the more severe attacks it is associated with frequent vomiting, and the patient will not uncommonly state that she vomits everything that she takes; this is manifestly an exaggeration, for the patient may be in good condition, not showing the evidences of profound wasting and collapse which would be the accompaniment of such symptoms. The appetite is poor, and, in fact, the patient frequently has an entire distaste for food. At times there may be attacks of sharp hæmatemesis with the vomiting, which will considerably strengthen the belief that a gastric ulcer is present. Constipation is usually a marked feature, so that the majority of such patients habitually take aperients. Physical examination will reveal certain characteristics which will help in the diagnosis.

PATHOLOGY OF THE CONDITION.

Although such is a very common example of the type of case under discussion there are others in whom the symptoms differ considerably, so that the resemblance will not be so close a one to that of gastric ulcer as to that of chronic appendicitis or to gall-stones. The severity of the pain, the long-continued symptoms, and the general deterioration in the health of these patients has in the past led many of them to be subjected to operative treatment, and to the astonishment of the surgeons no definite organic lesion has been discovered. The enormous amount of work which has recently been done upon this type of case has now, however, shown very clearly that there is a very definite pathology. This is widespread in its effects and is shown by (1) localised abnormalities in the intestinal tract, (2) changes in the general body structure, (3) alterations in the nervous system. It must be clearly understood, however, that the extent of these different changes varies very considerably, and only by a careful consideration of them all can one arrive at a correct diagnosis. I propose very briefly to consider them one by one.

LOCALISED CHANGES IN THE INTESTINAL TRACT.

Although perhaps not of the greatest importance, the presence of localised changes in the intestinal tract gives rise to the symptoms we are considering.

FIG. 1.

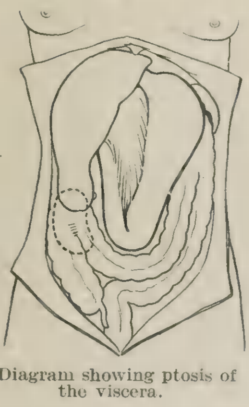
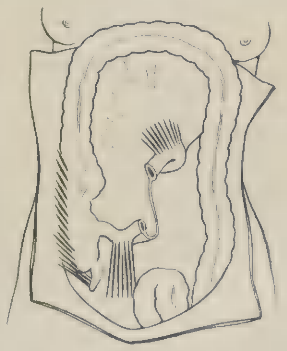


Diagram showing ptosis of the viscera.

FIG. 2.

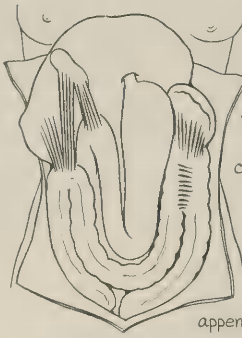


Lane's kink, Jackson's membrane, and the mesocolic fold.

The first most constant change is one of abnormal mobility and general dropping of the viscera. (Fig. 1.) The stomach and transverse colon are low, the cæcum is displaced downwards and freely movable and has a long mesentery. The right kidney passes down with the cæcum, to which it is generally adherent. The liver is low and rotates to the right, and often shows secondary changes in its contour. The uterus is retroverted and prolapsed, and the coils of the small intestine are sunk low into the pelvis. Although both increased mobility and ptosis are always found in patients with these symptoms, the former may be unexpectedly found at an operation for some other condition, and may give rise to no symptoms; even a profound degree of ptosis may be present and cause the patient no inconvenience. I have seen a large number of cases, some of them indeed my own personal friends, upon whom an operation for some acute condition such as appendicitis disclosed a freely mobile and low cæcum and transverse colon, and yet in after-life no further symptoms have developed.

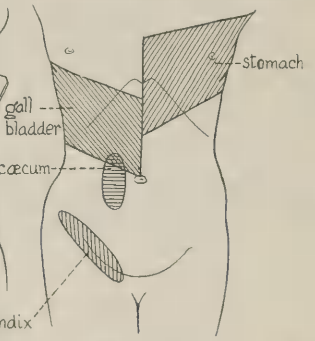
The second change is the presence of abnormal bands and membranes, usually most marked in the situation where the long mesenteries are evident. The nature of these membranes and bands are shown diagrammatically in the illustrations I present. There is a thin membranous sheet (usually described as Jackson's membrane) passing from the outer side of the cæcum and ascending colon to the right parietal wall and often upwards to the liver. There is a band on the under surface of the mesentery of the lower ileum trying this latter structure, in a small part of its course, down to the posterior abdominal wall and causing a kink of the ileum known as Lane's kink. (Fig. 2.) There is a membranous band, passing from the under surface of the mesocolon to the first few inches of the jejunum, known as the mesocolic fold. From the gall-bladder run membranes passing to the duodenum and to the hepatic flexure, known respectively as the cystico-duodenal and cystico-colic folds. There are thickened bands passing from the splenic flexure to the spleen and across from the distal end of the transverse colon to the first part of the descending colon, binding these two structures together and kinking them. (Fig. 3.) There is yet a further membrane, known as Toldt's membrane, which lies on the outer side of the pelvic colon and binds it down to the left iliac fossa.

Fig. 3.



The cystico-colic and duodenal folds and Payr's membrane.

Fig. 4.



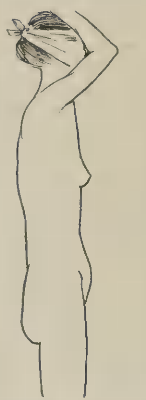
Areas of hyperæsthesia with visceral disease.

As with the case of the ptosis, these membranes and bands are often accidentally found and have given rise to no symptoms. It has been shown to my own mind conclusively that they are present in quite young children and may even be found in the fœtus, so that they must be regarded as congenital in nature. It is, however, when such membranes and bands are found in association with ptosis that symptoms begin to appear. In the later stages there is evidence of dilatation, of atony, and sometimes indeed of inflammatory changes in the walls of the intestine, especially in those of the cæcum and colon.

Changes in General Body Structure and in Mentality.

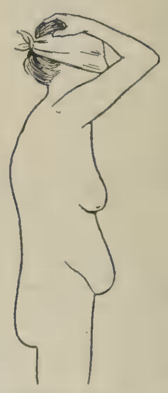
The changes in general body structure are often distinctive, and are divided into two groups known as virginal and maternal ptosis. The virginal type is very characteristic, and I have represented its most marked changes in Fig. 5. The patient is thin, sometimes wasted, she appears to be relatively tall, the tissues are soft and relaxed, and the whole body is poorly developed. These changes are sometimes evident even in quite young children, although they become more distinctive after the age of puberty. The thorax is narrow and shallow from before backwards. The lower ribs slant rapidly downwards, and there is a narrow epigastric angle. The shoulders are bent, the dorsal curve is exaggerated, and the lumbar curve absent. The upper abdomen is narrow and the waist long; the pelvis appears too wide for the body. The condition may be associated with flat-feet, "genu valgum," and sometimes with scoliosis. At times this change shows a distinct hereditary tendency. The second or maternal type (Fig. 6) is a patient who may have wide shoulders and a well-developed thorax and upper abdomen but the abdominal walls are soft and flabby owing to the patient's having had many children, and all the viscera have been allowed to drop. The lumbar curve may have disappeared and the shoulders may have become rounded.

Fig. 5.



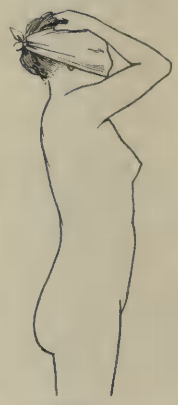
Virginal ptosis.

Fig. 6.



Maternal ptosis.

Fig. 7.



Ideal female type.

The changes in the nervous system, or rather in the mentality of these patients, are well known; owing to them a diagnosis of hysteria is frequently made. The changes consist chiefly of a lack of interest in their surroundings, of an abnormal concentration of their attention upon their symptoms, and, in fact, of a general melancholia. I have pointed out that changes in the body structure are often little in evidence, and the same is true of the mental changes. The description given above applies to an advanced case, but it cannot be too clearly realised that some of the patients with well-defined symptoms are apparently bright and healthy girls, with normal body structure, whose ptosis and intestinal changes are only recognised at operation or on X ray investigation; sometimes, indeed, these patients are good athletes, and in such the greater difficulty will arise in making a correct diagnosis.

Ætiology.

Before we consider the question of symptoms and treatment it will be necessary for me very briefly to discuss the ætiology of this condition. As you are all aware, there has been an enormous amount of theoretical discussion as to which is the primary factor. I have on many occasions discussed the evidence in favour of one or other of the views advanced, and will here simply state my own views as to the cause of the condition, and the evidence in support of these views. The mobility of the intestines, which is due to the presence of long mesenteries, is manifestly congenital, and the amount of mobility varies considerably in practically all people. If a series of normal people be investigated by the X rays the cæcum is usually lower in females than in males, but even in such normal people 50 per cent. or more may show viscera so low that symptoms would be expected to occur, and yet they have never been in evidence. The membranes and bands I also firmly believe are congenital in origin, and are not due to any reactionary change that attempts to overcome the mobility. They have been found on many occasions in quite young infants, and even in the fœtus at term. I believe that they are as common as the increased mobility, and, in fact, I have never yet seen a case with abnormally long mesenteries which has not shown some or other membrane formation. It therefore appears to me perfectly clear that a very high percentage of the human race, perhaps even indeed 50 per cent., have viscera which show a mobility and an excess in membrane formation which is usually regarded as abnormal.

Any theory to be satisfactory will have to explain why such a condition is so much more common in the female sex, for it is agreed by all observers that at least 80 per cent. of the patients are females. Although many of us may not believe in the equality of the sexes, we cannot seriously contend that woman is so much lower in the evolutionary scale that she tends to maintain the viscera of the quadruped. My own experience has shown clearly that the mobility and membrane formation is as common in males as in females; there must therefore be some other factor which makes the symptoms more common in women. This in many cases is manifestly the change in the body structure. Although a hereditary factor is sometimes found, there is as a rule in quite young children no difference between the body structure of the boys and girls. This change must therefore largely be acquired. Now it is found that these cases are much more common in women who have an unsuitable environment. It is more common in those who from an early age have to earn their own living, who have had to work for prolonged hours, often in insanitary surroundings and with little or no open-air exercise, and it is under exactly such conditions that a poor body structure would be expected to develop, leading in time to the changes in the vertebræ and thorax; it will be seen how much more likely these changes are to occur in those who show a faulty hereditary muscular tone. In the maternal type the factor is somewhat different. There is not the general loss of muscular tone, but there is the destruction of the support of the abdominal muscles and the loss of the lumbar curve.

This view will, however, still leave unexplained that group of cases where definite symptoms occur in apparently normal and well-developed women and men who have capacious upper abdomens and a well-shaped thorax. Sherrington has, however, supplied the explanation for this variety. He has shown clearly that there are two distinct groups of muscular activity, the one concerned with voluntary movements and the other with posture. Postural activity is characterised by the fact that it can be maintained for prolonged periods without fatigue. It is acquired in early life and is apparently largely the result of training. At first the various postures of the body can only be maintained by voluntary effort which is tiring and irksome, but later it becomes unconscious and can be maintained for long periods. The large number of people who were drilled in the recent war will realise how a correct stance is at first difficult to maintain, but later becomes automatic and unconscious. Now it has been recognised by many observers that many of the more athletic girls of to-day have an extremely poor carriage. They have, perhaps, developed their voluntary muscles to an extreme degree, but have entirely neglected their postural activities. Hence, although sturdy and apparently well-developed, they may have little or no tone in their abdominal or lumbar muscles, so that their viscera are allowed to drop. Moreover, loss of muscular tone is dependent upon mental fatigue, and hence is much more likely to occur in those people who have a poor mental capacity; thus it would seem that the mental changes so commonly found in these people are to a large extent primary, and that they are people who are less likely to make the mental efforts necessary to overcome their physical disabilities. In the later stages it is probable that the long continuation of their symptoms exaggerates their mental changes. It would thus seem that both increased mobility and membrane and band formation are congenital changes, which, after all, are of no importance, which exist equally in the male and female and which give rise to no symptoms; but it is the supervention of a poor muscular tone and a badly-shaped body which will allow these freely mobile viscera to drop, to become kinked, and in turn to be rendered atonic. I believe that this view is the only one which will explain the much greater frequency of this condition in women, and the fact that mobility and membrane formation is often found in patients who have little or no symptoms. It is also realised that in some of the most advanced cases of maternal ptosis no symptoms at all may be found. In such cases operation will reveal the fact that there is no membrane and band formation.

Symptoms.

It is manifest that if one viscera or one portion of the intestinal tract be more mobile or more kinked than another symptoms may be mainly directed to that portion, and thus it is that these cases come to us with a superficial resemblance to a gastric or duodenal ulcer, to gall-stones, or to appendicitis; but there are many characteristics common to all which will help to distinguish the case from one of these organic lesions. With the exception of the less common maternal type—and the relatively rare variety, starting in men about the age of 40, which may therefore resemble carcinoma of the stomach—there is, as a rule, a long history which dates back to the time the patient was at school. The patient will describe how during this long period there have been definite attacks, but careful investigation will show that she has never been perfectly free between; this fact alone will give rise to the suspicion of the underlying cause, being very different from the clear periodicity which is so evident with a gastric or duodenal ulcer. The attacks themselves are usually short, persisting as a rule only for a few days, and followed by a period of relative freedom which is often of short duration and rarely exceeds one or two weeks. Moreover, the attacks, if progressive in their severity, are only so to a very slight degree, and thus differ considerably from the attacks found with a chronic appendicitis. It is a difficult thing to visualise any pathological process within the appendix which could recur some 15 or 16 times and yet never would have led to an abscess or severe inflammatory change.

The pain is often described as "severe," but since our judgment of its severity is based on the patient's statement it is difficult to determine its degree; it is, however, manifestly not so disabling as the severe pain of an ulcer or of a gall-stone colic. It is frequently wide and diffused over the abdomen, although its point of greatest severity may be in the epigastrium in the gastric cases, or in the right iliac fossa in the pseudo-appendix cases. In the former it will not have the same definite relationship to food as with a gastric ulcer, or if made worse by food the increase will be noted almost as soon as the food is ingested. Another characteristic fact is that it is usually better in the morning and increases as the day goes on, generally to be relieved again when the patient lies down in bed. This dependance upon the patient's position, although not absolutely constant, is usually a marked feature, and one of my patients—an intelligent woman—had learned to stand on her head during her severe attacks and gained almost immediate relief thereby. In a similar way it is frequently noted that after a tiring or exhausting day the symptoms are more manifest. In the right iliac fossa, again, it is often noted that there is an exacerbation with each menstrual period, probably owing to the increased congestion of the pelvic viscera, and it is probably for this reason that so many of these patients have been operated upon for ovarian trouble.

The vomiting is generally a marked feature, much more so than in the case of an organic lesion. It is often present several times in the day, and in the younger women especially may continue for two or three weeks at a time. It is such conditions which are often diagnosed as chronic gastric ulcer; but it must be remembered that gastric ulcer cases usually only vomit in occasional attacks, and even if they do so the vomiting is rarely severe. The nature of this symptom is also sometimes helpful in the diagnosis of acute appendicitis, for in this condition a patient, as a rule, only vomits once at the onset of an attack. The act of vomiting often gives little or no relief, such as it does with gastric lesions other than carcinoma.

Hæmatemesis is a frequent symptom in the gastric type, especially in the younger women. In my own experience some 50 per cent. of the cases have had a sharp loss of blood at some time or other in the course of their disease. The loss of blood is manifestly due to the supervention of small gastric erosions in a dropped stomach. The appetite nearly always shows a characteristic change. There is a very definite loss during the attack, and this may indeed be as marked as the change which is seen in cases of carcinoma. Generally, however, there will have been the long history of many years attacks with severe loss of appetite in each. Even between the acute attacks the appetite is capricious; the patient will often state that she has little or no desire to eat, and that she has to be careful in the choice of diet lest severe symptoms be induced. Constipation is a frequent concomitant, and in fact many observers regard this as the primary cause. The majority of such patients will state that they rarely have a movement of the bowels without some aperient, but some will state that they are better when the bowels are freely moved, others that they are not so well. It must be remembered here that in the long-standing cases, where the stasis is advanced, there may be diarrhœa instead of constipation, owing to the onset of colitis from the previous stagnation.

In addition to these general symptoms the patients will often state that they have a feeling of general malaise, of lack of interest in their occupation, and of general inertia. In fact, it is a very frequent thing to find young women presenting no physical signs of any gross disease who have been unable to carry out any employment, or indeed to lead a life other than that of a semi-invalid, for many years.

On physical examination the types vary enormously. An extreme case will show the typical changes of mental depression, the characteristic features of the "ptosis habitus," and evidences of dilated and dropped viscera. Such conditions can hardly be overlooked if their possibility is remembered, but it is in the more intelligent type of patient who has a better physical development that difficulties in diagnosis are more manifest. In them a careful outlook will have to be maintained for the presence of positive physical signs. It is well to remember that unless there are complications a patient with gastric or duodenal ulcer or gallstones will show little or nothing beyond a localised area of deep tenderness. A patient with ptosis, although perhaps having a well-shaped abdomen, will generally manifest evidence of loss of tone, so that in the erect posture there will be a sinking-in of the upper abdomen and a protrusion of the lower portion. Not infrequently definite areas of hyperæsthesia give a clue to the correct diagnosis, and Fig. 4 shows the areas of hyperæsthesia associated with gastric dilatation or acute ulceration, and of dilatation of the cæcum, which are to be contrasted with those of a dilated and diseased gall-bladder or appendix. A chronic gastric or duodenal ulcer is never associated with areas of hyperæsthesia. On abdominal palpation the deep tenderness in a case of ptosis is more widely diffused, corresponding either to the whole area of the stomach or cæcum or being manifest over the whole lower abdomen. The dilated stomach and cæcum are frequently palpable, for distinct splashing may be obtained over either viscus on palpation. Attention should always be directed to the right kidney, which is often abnormally mobile. The examination of the test-meal is often of little value, for although in the majority of cases both free hydrochloric acid and total acid are much diminished, in some cases they are well above normal and may indeed be as high as those found in a duodenal ulcer. X ray examination, if conducted by one well skilled in this branch of work, is often of value. There will be the absence of the positive signs of a gastric or duodenal ulcer, the stomach, the colon, and the cæcum will frequently be abnormally low, and, what is perhaps of more importance, they will show a definite delay in emptying. It must be remembered that this delay is often associated with abnormally active movements, so that irregular areas of spasm and contraction are seen, but they do not empty the viscus. General constitutional changes, to which Sir Arbuthnot Lane has directed so much attention, such as a sallow complexion, foul breath, chronic mastitis, and areas of pigmentation, are usually only seen in late and advanced cases when the diagnosis presents little if any difficulty.

TREATMENT.

It is well to remember that the primary treatment of this condition is essentially medical. The congenital factors of abnormally long mesenteries and membrane formation, although an important part of the disease, will give rise to no symptoms unless the loss of muscular tone be superadded. Such loss of tone with its consequent alteration in the body structure cannot be overcome by operative treatment. Often, indeed, it is so advanced that even a complete alteration in the patient's manner of life and the most careful medical treatment will fail to overcome the established deformities. The essential fault to remedy, however, is the carrying out of surgical treatment in the belief that a definite organic lesion is present. The details of medical treatment which should be carried out in these cases I shall not enter into here, but they will always be prolonged and tedious, and will include careful attention to physical exercises combined with rest, general hygiene, dieting, and medical treatment. Since the patient's condition of life is such that she often can give neither the time nor the money for such a course of treatment, it is manifest how difficult is the cure. Only after such a course of medical treatment should any question of operative interference be considered. A large number of operative measures have been put forward from time to time as a cure for this distressing complaint, but the value of every one has in the past been grossly exaggerated; one has only to remember how widespread are the changes to realise that any form of operation will fail to overcome them all, and it must therefore be clearly understood by the physician or surgeon—and should, indeed, be explained to the patient—that any form of operation can at best give partial relief, and will have later to be combined with medical treatment. In other words, if the medical treatment alone has failed, an operation may be added in order to make that medical treatment more successful.

The next factor on which personally I lay great stress when deciding to operate is the localisation of symptoms. If these are diffuse, if there is much mental change and a poor body structure, it is evident that any operative treatment that hopes to be successful would have to include a widening of the lower thorax, a restoration of the lumbar curve, a fixation of all the affected viscera, and a return of the muscle tone. Such an operation is, of course, impossible, and the best results, therefore, are likely to accrue when one viscus is not alone at fault but is the only one sufficiently abnormal to give rise to symptoms. Thus, if the patient complains almost wholly of gastric symptoms, attention can be directed to this viscus with every hope of amelioration, and the same is true with right-sided symptoms limited to the cæcum and ascending colon, but it must be clearly realised that claims which have been made that the mobility of one viscus is the cause of the widespread symptoms are incorrect. No primary mobility of the cæcum could possibly give rise to the secondary mental changes and dropping of the transverse colon and stomach, or to the increased length of the pelvic mesentery. It is also manifestly incorrect that a mobile cæcum is the cause of chronic gastric and duodenal ulcer, for all observers are agreed that although ptosis is a very common condition, and is often mistaken for these lesions, it is but rarely found associated with them. Ptosis is a disease of relatively young women, gastric and duodenal ulcers are much more common in adult men.

The actual steps in treatment will be two-fold. Any obstruction of the viscus from kinking by bands or membranes will have to be overcome. This may be accomplished by division of the bands, or in some cases, as in chronic duodenal ileus, an anastomosis will be necessary. Remember, however, that a gastro-enterostomy for a dropped stomach is almost certain to be unsatisfactory, probably because the tone of the gastric muscle is much below normal. When all the kinks and obstructions are overcome it will be necessary to fix the dropped viscus. The technical methods of performing such a step I shall not enter into to-day, but the fixation should be such that it interferes as little as possible with the motility of the viscus and causes little or no deformity. The viscera to which such fixation has been most successful are the right kidney, the cæcum and ascending colon, the stomach, and the transverse colon, but my own experience has been that a measure of relief is only afforded if the symptoms are almost wholly limited to one or other of these viscera, and even when such an operation has been performed medical treatment must be carefully continued, and the conditions of life of these patients, which preclude the possibility of adequate exercises, will often necessitate the use of some abdominal binder or support.

Resection of some portion of the intestinal tract, whether of the cæcum alone or of the whole colon, is tending to have a more and more limited field ; like many other surgeons, I find that I am performing this operation very infrequently. In my opinion, it should be limited to extreme cases in which the colon is not only low, but also very atonic. It is an operation which is associated with a considerable mortality, and therefore it will not often be justified as a form of treatment foı a condition which, although very disabling, does not in itself lead to the death of the patient.

THE THYROID APPARATUS IN MAN.[*]

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The first application of the recently published work on the structure and physiology of the thyroid gland is to review the integration of the various organs associated with the thyroid gland function. Launoy[1] has very completely reviewed the facts in favour of considering the thymus, thyroid, and parathyroid, not merely as associated structures, but as one functional apparatus. Critical examination of material from 2000 post-mortems affords considerable substantiation of the point and perhaps affords a guide to the specific function of the apparatus.

Anatomical Features of the Thyroid Apparatus.

The Thyroid Organ.—The thyroid organ consists of two compact lateral lobes. The upper pole of each lobe is marked off by a constriction below which lies the bulk of the lobe. Immediately below this constriction a band of thyroid tissue projects across the middle line from each lobe to form an isthmus, or from each side it extends up the neck along the line of the thyro-glossal duct to form a pyramidal lobe or lobes. The lobes of the gland have no capsule proper ; they lie in a special compartment of the fascia of the neck. This fascial compartment is usually shut off from the mediastinum on each side by a fibrous tissue diaphragm. Each lobe has a hilus, where the loose fascia dips into the gland substance to become the interstitial tissue of the organ. The hilus lies posteriorly on the mesial surface of each lobe under cover of the base of the isthmus or pyramidal lobe. The large inferior thyroid artery enters the lobe at the lower end of the hilus, and the smaller superior thyroid artery at the upper end, these arteries are usually united by a communicating vessel that occupies the length of the hilus. Only small venæ comites emerge from the lobe at the hilus. The veins and lymphatics emerge at the surface of the lobes and unite in the loose fascia to form a plexus of veins and lymphatics which is continuous in the fascial compartment with a similar plexus from the thymus. The vascular supply within the lobes is characterised by a considerable capillary anastomosis between arteries and veins in the interstitial tissue of the lobe, providing, as it were, a short circuit, before the very specialised capillaries of the functional unit are given off. (Kidney and liver present a similar arrangement.) Certain anomalies in the gross anatomy must be noted. Accessory lobes are a frequent occurrence, most commonly at the lower pole of the lobe. An accessory lobe may lie in the mediastinum beyond the fibrous diaphragm. The upper pole may constitute one of these accessory lobes. The compact gland may give place to a multilobar gland, the small independent lobes being scattered in the fascial plane from the hyoid bone to the root of the great vessels in the mediastinum, there being no fibrous tissue diaphragm separating the thyroid and thymus tissue. The isthmic tissue may be absent on one or both sides. The arteries are the subject of great variation. The superior artery may be the larger or the only vessel, or may be absent. Very frequently both arteries break up on entering the fascial compartment into numerous branches, which enter the hilus independently, so that neither superior nor inferior thyroid can be recognised in the hilus. (Fig. 1.)

Microscopic Anatomy of Thyroid.[2]—The lobes of the thyroid organ are divided up by interstitial tissue septæ into lobules. The lobules consist of a collection of gland units having a specific structure. Each gland unit is enclosed in a fibro-elastic tissue capsule, giving support to the endothelium of a lymphatic sinusoid, which is an expansion of the intralobular lymphatics. Within the sinusoid lie coiled columns of epithelium. The columns of epithelium are surrounded by a peculiar ladder-like plexus of capillaries, their walls of endothelium are unsupported by any fibrous tissue. These capillaries emerge at two or three points, penetrate the endothelium of the sinusoid, and become the intralobular vessels—artery and vein being indistinguishable within the limit of the lobule.

Thyroid Epithelium.—The appearances presented by this epithelium will vary with the phase of physiological activity. The architecture of the epithelium is seen only in the indifferent phase. In this phase the epithelium, seen in section, corresponds to the "interfollicular tissue" of the literature, about which controversy has raged. The existence of a system of micro-capillaries in the substance of the epithelial column[2] serves to distinguish it from parathyroid tissue and to identify it with the general body of the gland in the other phases of activity. In this phase the column of epithelium seems solid. The central zone of the column is demarcated by the system of micro-capillaries. The central core of the zone contains a homogeneous protoplasm continuous through the mesh of the micro-capillary system with the protoplasm of the periphery. The nuclei lie in a central position near the closed mesh of the micro-capillary system. The epithelium has all the appearance of a syncytium, and contains no colloid, no secretion, and there is no granular matter in its protoplasm. The opaque areas to which particular attention has been called[3] may be made up of epithelium in this phase.

Parathyroid Bodies.—The parathyroid bodies, two in number, lie at the upper and lower ends of the hilus in each lobe, in close association with the superior and inferior thyroid arteries. They are bean-shaped bodies, having a soft, almost diffluent consistency. In the cadaver they are pigmented bodies often indistinguishable from the pigmented fat in which they lie. In life, neither the pigment nor the fat with which they are associated is obvious. They are not to be confused with the special lymphatic glands that also constantly occupy the region of the hilus. Each parathyroid body draws its arterial supply from the associated thyroid artery. The venous return drains into a specially large vein, which joins the plexus on the surface of the thyroid gland. A considerable branch from the sympathetic is lost in the substance of each parathyroid body. Anomalies in the structure and distribution of the parathyroid bodies are common; there is, however, a definite relation between them and certain anomalies already noted in the thyroid. They each vary in size with similar variations in the size of their associated superior and inferior arteries. When there is only one artery entering the hilus of the lobe, there is only one parathyroid body, proportionately larger in size. When the arteries break up and enter the thyroid gland as independent twigs, there is no macroscopic evidence of a formed parathyroid body; microscopically, the tissue is spread out over the extent of the hilus. In the multilobar state of the thyroid no parathyroid tissue is to be found. When there is a single large parathyroid, the branch from the sympathetic trunk is a very obvious macroscopic structure, and is seen to end in the substance of the large body.

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[*] Assisted by a grant from the Medical Research Council.

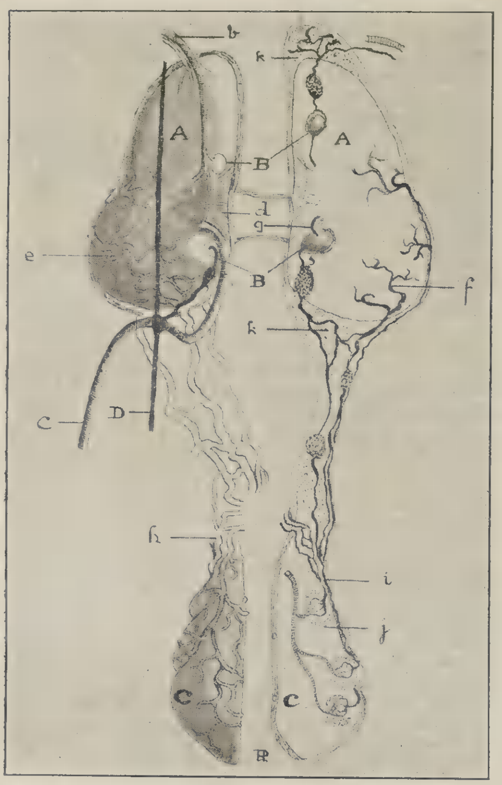

Fig. 1.—Schematic drawing of the thyroid apparatus.

A, thyroid gland: (a) hilus, (b) superior thyroid artery with parathyroid branch, (c) inferior thyroid with branch to parathyroid body, (d) intercommunicating artery, (e) capsular veins, (f) capsular lymphatic plexus.
B, parathyroid bodies: (g) ancillary lymphatic.
C, thymus: (h) venous plexus, (i) afferent lymph channels, (j) thymic lymph nodes, (k) superior and inferior (thymic) lymph-fat-gland bodies.
D, sympathetic trunk with parathyroid branch.

Microscopic Anatomy of Parathyroid Bodies.—The parathyroid bodies are composed of a series of systems of tubes. The tubes usually appear as columns of cells generally cubical in shape. The first part of their course is more or less radial. Centrally, they are coiled and convoluted, and when empty their appearance suggests a sponge work. Fibrous tissue accompanies the radial portion of the tubes, but only the capillaries penetrate to the central spongy zone. The lining cells of the tubes are subtended by a reticulum of large granular polygonal cells. Nerve fibres run in this reticulum. Granules of refractile, yellow-brown pigment occupy the clear cytoplasm of the cells lining the tube; this is more abundant, as a rule, in the radial portion of the tube. Certain anomalies are of interest. The body may be divided up by fibrous tissue septæ, so that there is no discernible spongy centre, each member of the series of systems of tubes being more or less a separate entity. Frequently the systems that compose the body occur scattered independently through the fatty tissue in the hilus of the gland, the compact nature of the body being lost; this occurs when the thyroid arteries enter the hilus as a congerie of branches. The degree of scattering that occurs in the multilobar thyroid may explain the inability to find parathyroid tissue.

The Thymus.—The thymus lies in a special fascial compartment in the mediastinum, separated from the thyroid compartment by a fibrous diaphragm. It is composed of two leaves of tissue, each with a central branched stalk of fibrous tissue. In the fibrous tissue stalk and its branches run numerous arteries which end as glomerular tufts. About the glomerular tufts lie the reticulum cells of the thymus tissue. The blood leaves the gland at its surface by numerous veins which join the venous plexus of the thyroid gland. Large lymphatics run with the veins and form a plexus continuous with that of the thyroid gland. There are numerous lymphatic glands at the root of the neck within the thyroid-thymus fascial compartment associated with this plexus. In a generalised pigmentation of the deep and superficial cervical, the mediastinal and bronchial lymph glands, this system of lymphatic vessels and glands escapes pigmentation; it is, in fact, peculiar to the thyroid and thymus. The characteristic Hassall corpuscles lie in the fibrous tissue stalk or in its branches; they seem unconnected with the thymic reticulum, and are the only vestigial tissue in the thymus. Thymic tissue proper does not atrophy, but undergoes a very characteristic metatrophy. The lymph glands and fat in the hilus of the thyroid lobe present certain peculiarities. The lymph gland has no capsule, so that its reticulum is apparently continuous with that of the reticular mesh containing the fat. The colour of the fat varies with the colour of the thymic fat. As a rare occurrence this lymph-fat-gland tissue contains concentric bodies having the characters of Hassall corpuscles. This applies also to other lymph-fat-gland tissue encountered at the upper and lower pole of the thyroid lobe, each of them being constant structures. These appear to be part of the special lymphatic system more or less peculiar to the thyroid apparatus. This is often very strikingly brought out, in cases where the whole of the lymph glands of the neck, deep and superficial, are deeply stained with carbon-pigment. The glands of the thyroid apparatus remain as definite flesh-coloured structures devoid of pigment. This also applies to the thymic lymph-fat-gland tissue. The writer is of the opinion that these lymph-fat-gland bodies are essentially thymus tissue.

Anomalies.—The fibrous tissue diaphragm is commonly drawn up as a funicular extension attached to the lower pole of the thyroid lobe; in this lie the lymphatic plexus and lymph glands. The fascial compartment of the thymus is very frequently common to thymus and thyroid. Thymus tissue may be encountered anywhere within the compass of distribution of thyroid tissue in its anomalies. That applies not only to the endothelioid element but to the Hassall corpuscle element. In the multilobar form of thyroid the thymus and thyroid are inextricably mixed up. We have encountered an entire absence of medastinal thymus with hypertrophy of the neck nodes. The branches of the fibrous stalk may penetrate to the surface of the gland and isolate each glomerulo-reticular zone, resulting in the thymus appearing as a collection of discrete units not unlike a bunch of grapes. (Fig. 2.)

Physiological Features of the Thyroid Apparatus.

The architecture of the thyroid apparatus, as set out above, is modified in quite definite directions by the furniture of physiological occupation. In the thyroid gland two cycles of operation present themselves: (1) a secretory phase; (2) a vesicular colloid phase. Neither can change over to the other without passing through the indifferent phase already noted.

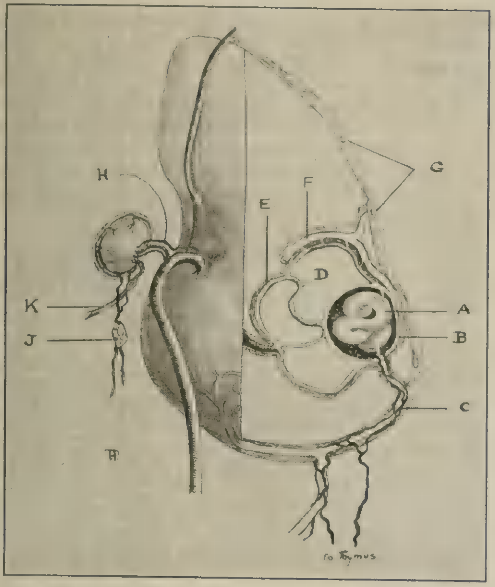

FIG. 2.—Schematic drawing of thyroid mechanism showing its connexions.

A, epithelial unit lying in B, the lymph sinusoid, draining into C, capsular lymphatics; D, arterio-venous vascular supply arising from E, interlobular artery which communicates with F, the interlobular vein, which empties into G, the capsular plexus; H, ancillary lymph channels emerging from the hilus to enter I, the parathyroid body from which they emerge and enter J, lymph-fat-gland tissue (? thymus); K, branch from sympathetic.

The Secretory Phase in the Thyroid Gland.—This is an active process in which the epithelium, the sinusoid, and all the endothelium of the gland units participate. In all its stages it gives the opaque appearance on macroscopic inspection that is also a feature of the indifferent phase. The details of this process of secretion are set forth in the original communication, from which the following summary is taken. The sequence of events is: (1) the opening up of the potential space of the lymphatic sinusoid by fluid matter; (2) a change in the endothelial cells lining the sinusoid associated with which lymphocytes appear in the intralobular lymph channels, and frequently also in the sinusoidal space; (3) swelling of the epithelium, migration of the nuclei to the extreme periphery, and the appearance of two orders of granules; (4) vacuolation of the protoplasm and partial solution of the granular matter in the fluid of the vacuoles; (5) lacunation of the epithelium by the accumulation of the contents of the vacuoles in the central core of the column of epithelium; (6) the tubules in the protoplasm of the epithelium appear to swell and conduct granular fluid; the radial branches become quite turgid.

Changes in the parathyroid bodies are definitely related to the nature and quantity of the secretory phase in the thyroid gland. The commonest condition is associated with the presence of fluid matter in the sinusoids of the thyroid gland during the course of secretory activity. The fluid matter (not colloid) can be traced directly to the tubes of the parathyroid bodies, giving to these structures a pseudo-vesicular appearance which has led to the confusing of thyroid and parathyroid tissue. One other feature of active secretion, more particularly associated with its lacunar phase, is the aggregation of lymphocytes in the sinusoids and lymphatic channels. These also overflow into the parathyroid bodies—so much so that they can completely obscure the architecture of the bodies. The lymphocytes are found, not only in the lumen of the tubes, but also in the inter-tubal tissue among the polygonal cells. These changes are proportionate to the amount of activity in the thyroid gland. The secretory activity of the thyroid gland is as intimately associated with changes in the thymus. Any increase in the secretory activity is invariably associated with an increase in the quantity of the lymphocytic element in the thymus; any decrease is associated with fat accumulation at the expense of lymphocytes. In favourable cases the fluid which we have seen in the sinusoid during activity in the thyroid gland can be traced, almost in continuity, to the lymph channels in the surface of the organ, and from thence through the plexus to the thymus. Little pools of this fluid are often found in the thymus tissue. Active changes in the endothelial element of the thymus are associated with the accumulation of lymphocytes in the tissue. It is possible to gauge the stage of secretory activity in the thyroid by studying the relation of lymphocytic accumulation in the thymus and in normal individuals the reverse is also true (this last does not hold in certain pathological states). As the lymphocytic change appears, the stored fat disappears, and there is evidence that the fat is actually used in the making of the lymphocytes—the change in the thymus from a fat to a lymphoid organ is, in fact, a metatrophy and not an atrophy, and it is the prevalence of secretory activity in the thyroid gland which determines this in health. The secretory phase in the thyroid gland is a most variable quantity. In fœtal life it is present to some degree in the midst of the indifferent tissue. In infancy it definitely increases in amount and continues to do so to about 9 years of age, and from that age remains stationary in quantity up to puberty; after puberty it increases, but not in any degree of disproportion, since the whole gland hypertrophies in a balanced manner—secretory, vesicular, and indifferent tissue in mutual relationship; after 18 to 20 years it diminishes in amount and colloid increases in amount. It cannot be sufficiently emphasised, however, that this age variation in the quantity of secretory activity is large, and difficult to estimate because each individual seems to be a law unto himself as regards the degree to which he depends on secretory activity of the gland. Further, it is very probable that each individual has seasonal as well as decadal variations. Nevertheless, the above facts stand out in an analysis of 2000 cases with considerable emphasis.

Response of Thyroid Apparatus to Age Variations.

The whole apparatus responds to these variations; thus the thymus would begin as a mixture of fat and lymphoid in the fœtus, and gradually acquire more lymphoid element at the expense of the fat up to 9 to 10 years, thereafter remaining stationary to puberty. With the hypertrophy of the thyroid and the consequent increase of secretory activity the lymphoid element would increase and the fat disappear, but without any actual increase in the bulk of the organ. When, on the other hand, the individual shows little increase in secretory activity and much colloid storage, the fat tends to disappear as well as the lymphoid tissue. At 18 to 20, when the thyroid is set as a nearly pure colloid storage, again fat perceptibly increases in the thymus, and this increase again is more related to the extent of the decrease in secretory activity than to the actual colloid storage.

In general disease, I am of opinion that the variations seen are no greater than those encountered in health. Rupert Farrant's[4] study of the thyroid gland in acute specific fevers becomes therefore a description of the very protean nature of the gland encountered in children of the fever age. Certain specific diseases still further emphasise this relationship of thyroid and thymus. Secretory activity is linked up to the lymphoid states, such as acute lymphatic leukæmia (in children), myasthenia gravis, certain intestinal lymphoid hypertrophies extraordinarily common in infants and children, either generalised in lymph-nodes or focal, as at the appendix and pyloric antrum, and in persistent thymus and status lymphaticus. In all these states a pathological degree of secretory activity is evident in the thyroid gland.

In other conditions in which the thyroid gland shows secretory activity—as in eclampsia, status epilepticus, rickets, and the adenoid state in children—the lymphatic tissue, including the tonsils and lymphatic glands, shows a loss, often complete, of any lymphocytic activity. The thymus in these states is a simple endothelioid organ without fat and without lymphocytes—exhaustion best describes the condition. In a few cases of diabetes this condition of affairs also prevails. It is only necessary to recall the fact that a considerable school of observers look upon exophthalmic goitre as a thymic disease to emphasise the inter-relation of these two organs in that heterotrophic state in the thyroid gland.

Vesicular Colloid Phase in the Thyroid Gland.—The summary of this phase is taken from the original paper, and is as follows: (1) Vesiculation occurs in definite areas of the epithelial columns of the gland-unit; (2) vesiculation leads to the fragmentation of the columns into discrete spheroidal vesicles; (3) vesiculation is not accompanied by any demonstrable biochemical disturbance of the nuclei or protoplasm of the epithelium; (4) the gland-unit passively suffers distension and distortion to the extent of losing its identity under the process.

In the normal individual stored colloid varies inversely with the secretory activity in the gland up to a point. This is not invariably so, for in marasmus colloid disappears without any increase in secretory activity—i.e., there is a reversal towards the fœtal state in the gland. Thymic fat does not necessarily disappear in these conditions, but there is no increase in the lymphoid element. Even in children and young adults, vesicular goitre is associated with a fat-laden thymus, and this may have some specific significance. For the rest, stored colloid is almost a measure of thyroid inactivity, but so long as metabolism has a maintenance value secretory activity does not follow colloid depletion.

Conclusions.

The thyroid gland, the parathyroid bodies, and the thymus are intimately related anatomically, physiologically, and pathologically. They constitute an apparatus probably engaged in the conduct of some specific function. The thyroid gland is the main organ. The parathyroid is a sentinel gland of neuro-lymphatic nature, set in the course of the effluent, probably engaged in measuring the efficiency of the thyroid gland, and through the sympathetic nervous system adjusting its operation to the needs of the body. In the experience of the writer, certain pathological conditions of the kidney—or renal apparatus—indicate a similar relationship between the kidney and suprarenal body—the term neurotrodal gland would indicate the significance of such structures on the analogy of the electrode.

The thymus is a reservoir for the effluent—which, according to its nature is stored either as fat or in the lymphocytes. This must not be taken to imply a movement of lymphocytes into the blood or lymph; the probability is that they are manufactured in situ, and absorbed in situ. (See also Cramer's work on the possible significance of the blood platelets.[5])

The fact that colloid usually disappears to give place to any secretory activity, and the fact that it need not be so associated as in marasmus and in early fœtal active glands, make it probable that the colloid is exercising some vehicular function analogous to some of the constituents of bile. It is only passively concerned in the operation of the thyroid apparatus.

The most important feature of these conclusions is the implication of the lymphocytes in the operation of the thyroid apparatus. It presents the most promising line of investigating the function of this apparatus. Indeed, I approached the whole problem from a study of the inter-relation of purin-creatin and amino-acid nitrogen in intestinal disease of children, and was led from that to the heterotrophic lymphoid conditions, local and general, and through them to the thyroid gland.

Certain preliminary chemical studies—more particularly directed to the problem of the ætiology of gastric ulcer[6] and appendicitis—fix upon nitrogen carriage as the significant function of the lymphocyte, and this from the point of view not so much of total nitrogen as of the nature of the nitrogen (nucleo-protein, purin, amino-acid, peptide), so that the writer is working on the hypothesis that the thyroid apparatus is primarily concerned in controlling the direction of protein synthesis within the body—making it either a synthesis of plastic nitrogen, or trophic nitrogen, as the case may demand, the thymus being the reserve store of such nitrogen. Even the fat phase in the thymus yields nitrogen values for the tissue that are significant. Jackson[7] has already published observations which implicate secretory activity in the thyroid with protein metabolism, and Noel Paton's work,[8] looked at from a point of view not so exclusively endocrine, would have the same significance if lymphocytes, being the nitrogen carriers, varied their nitrogen partition from purin to non-purin according to need. Cramer's[9] work, and that of Cramer, Drew, and Mottram[10] on the lymphocyte, may have a similar significance.

Experimental work in this direction will further demand that some note be taken of the excretion of nitrogen other than the end-products of completed katabolism. This probably takes place through the gonads, making them, as it were, the kidneys of the plastic phase of metabolism, through which are excreted the end-products of completed anabolism. Protein metabolism (perhaps all metabolism) being a completely reversible chemical reaction, katabolism at the one end and anabolism at the other end, each implying complete catathesis of the substrate, the excreted end-products differing with the *direction* of the reaction.

A consideration of the significance of the conclusions in experimental ablation of the various parts of the thyroid apparatus is necessary. Clearly the effect of ablation may depend largely upon the relation of the individual to the secretory activity of the thyroid. This is the most variable feature of the gland. Thus it becomes necessary to postulate that in any experiments of that nature it will be necessary to reduce the individual to a definite dependency on secretory activity in the thyroid gland. Jackson and Mellanby's[11] work points to a means of achieving this, so that it may become possible to reconcile the contradictions which are the only striking results to date from experiments of this nature. The same criticism applies to the various thyroid extracts. Any extract of an average normal gland will largely consist of colloid extractives plus any constant peculiar to thyroid tissue, and the most variable quantity of traces of an active secretion. Here, also, it will be necessary to consider the thyroid gland as a resting organ in the indifferent phase, as a colloid storage organ, and as a secretory gland, and each of these in the lymphoid, fat, and exhausted stage of the thymic store, before we can hope to solve the problem of any autocoid activity the apparatus may possess.

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ON IMMUNO-TRANSFUSION.

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In the course of a lecture on the treatment of infected war wounds[1] in 1919, Sir Almroth Wright advocated the transfusion, in certain cases, of immunised blood. This procedure, to which he applied the term "Immuno-transfusion" affords a last resource, he said, for patients suffering from septicæmia, when all that the surgeon can do has been done and when no response can be obtained to the inoculation of vaccines. He did not advocate simple transfusion because he had found that the normal blood-fluids contained, as a rule, less protective substances than those of the infected patient. As a matter of fact, simple transfusion had already been tried and had proved unavailing. The immunised blood, which Sir Almroth Wright proposed to employ, was blood taken from a healthy donor and subsequently inoculated in vitro with such a quantum of vaccine as would suffice to render its plasma bactericidal for the microbe with which the patient was infected. As an example of what can be achieved by such a procedure Sir Almroth Wright gave a brief account of a desperate case of wound infection which had been successfully treated on these lines.

During the four years which have elapsed since this lecture was given certain new facts have come to light which serve to reinforce the suggestion that this method of treatment will prove to be of great value. We have learned—by simple experiments which were fully set out in a recent paper by Wright, Colebrook, and Storer[2]—why it is that immunising responses cannot be obtained in the very heavy bacterial infections which Sir Almroth Wright had in mind. The experiments show that the patient's leucocytes are chiefly at fault. Although in respect of numbers, they are not usually deficient, yet in respect of bactericidal functions they are often far below the normal level. They fail to furnish protective substances—i.e., to make an immunising response—when brought in contact with microbes outside the body, and their phagocytic power, and their power of killing microbes extracellularly are also reduced. It is not surprising that patients whose blood shows such defects should, if left to themselves, go from bad to worse. The infecting bacteria multiply and produce toxic substances, while the leucocytes, poisoned by these toxic substances, are unable to destroy the bacteria. Further, in such circumstances, it will be clearly useless to inoculate the patient with vaccine—he is unable to respond to it and will only be harmed. We may, however, sometimes be able to turn the scale in his favour if we can confer upon him a temporary passive immunity, as Sir Almroth Wright proposed, by means of the bactericidal plasma we inject, and if, in addition, we furnish him with a large body of normal leucocytes, capable of making an active immunising response. This is what we seek to do by immuno-transfusion.

Procedure for Carrying Out an Immuno-transfusion.

Our chief aim in this paper is to set out what has been learned from the treatment of a number of patients by this method. The problems of procedure may conveniently be dealt with under the following headings:—

1. Tests which enable us to determine whether an individual patient ought to be treated by the inoculation of vaccine or by immuno-transfusion.
2. Choice of a donor.
3. Immunisation of the donor's blood.
4. Considerations which make us elect to use defibrinated blood rather than unaltered blood or blood in which clotting has been prevented by the addition of decalcifying agents.
5. Procedure for drawing off the blood from the donor and defibrinating it.
6. Study of the question whether, when circumstances require it, the donor's blood may be kept for a few hours before it is injected into the patient.
7. Procedure for injecting the blood into the patient.

Tests to Determine whether a Patient should be Treated by Inoculation of Vaccine or by Immuno-transfusion.

In view of what has already been said it will be clear that what we most want to know about every patient who is suffering from a heavy bacterial infection and is not doing well, is whether his leucocytes are capable of making immunising responses. The direct way to ascertain this is by carrying out a vaccine-response test. For this purpose we take about 1 c.cm. of the patient's blood, defibrinate it, and then, keeping one portion as a control, add to several other portions progressive amounts of any bacterial vaccine which we know to be a satisfactory antigen. After incubation of the bloods for half an hour or so at 37° C., we centrifuge them and test the opsonic powers of the several sera, using for this purpose a staphylococcal or any other suitable bacterial emulsion.

If, on counting the phagocytic intake, we find that the serum derived from one or more of the vaccinated bloods has a notably higher opsonic power than that of the control serum, we conclude that the leucocytes have made an immunising response to the quantum of dead microbes added to those bloods, and we infer from the in vitro experiment that they will also in vivo respond to that quantum of dead microbes (vaccine) when injected directly into the blood-stream. Immuno-transfusion, for the time being, at any rate, is not required for this patient. If, on the other hand, our test shows that vaccination of the blood has not resulted in any increase of opsonic power we infer that the patient's leucocytes are so poisoned as to be incapable of making responses and that immuno-transfusion is indicated.

It will be said, however, and rightly, that the carrying out of a vaccine-response test of this kind takes more time than can usually be devoted to an individual patient. Happily we can substitute for it simpler tests which can be carried out in a few minutes by anyone familiar with "opsonic" technique. Simplest of all will be the evaluation of the phagocytic (not the opsonic) power of the patient's blood. For that purpose all we require to do is to obtain small samples of blood from the patient and a normal individual—two or three drops from the finger will suffice—defibrinate each of them, and then put up phagocytic mixtures consisting of:—

(*a*) 2 vols. of the patient's blood + 1 vol. of a staphylococcal or other suitable bacterial suspension.
(*b*) 2 vols. of the normal blood + 1 vol. of the same suspension.

After incubation of these mixtures for 15 to 20 minutes the phagocytic intake occurring in each is counted in the usual manner. The amount of phagocytosis found in the two specimens will depend, of course, upon the operation of two factors in each sample of blood—viz., the opsonic power of the serum and the activity of the leucocytes. Experience has shown, however, that where a very low phagocytic count is obtained with the patient's blood—say one-third or less of that obtained with the normal blood—this will very seldom be due to a serious deficiency of the opsonic power of the serum: almost always it will be due to a diminished activity of the leucocytes. Further, experience has shown that if the blood of such a patient be submitted to a vaccine-response test we shall obtain only a negative result. We may take it, then, as a rough working rule that where the phagocytic intake obtained with the patient's blood is one third or less of that obtained with the normal blood, the patient's leucocytes will be incapable of making satisfactory immunising responses to injection of a vaccine, and that immuno-transfusion is indicated.

Where the laboratory worker has rather more time at his command than is required for the very simple test just described he may with advantage evaluate separately the opsonic power of the patient's serum and his leuco-phagocytic efficiency. This constitutes the "chiastic test" (Wright[2]). Small samples of defibrinated blood are obtained as before from the patient and a normal individual (preferably one whose blood is of the same group as that of the patient, in order to avoid agglutination of the red corpuscles in the phagocytic mixtures). The two samples are centrifuged and the serum removed from each; the corpuscles are next washed in two changes of physiological salt solution, and a suitably diluted bacterial suspension prepared. The following phagocytic mixtures are then put up in opsonic pipettes:—

(*a*) 1 vol. of washed corpuscles prepared from the patient's blood + 1 vol. of normal serum + 1 vol. of the bacterial suspension.

(*b*) 1 vol. of washed corpuscles prepared from normal blood + 1 vol. of normal serum + 1 vol. of the bacterial suspension.

(*c*) 1 vol. of washed corpuscles prepared from normal blood + 1 vol. of the patient's serum + 1 vol. of the bacterial suspension.

After incubation of these mixtures at 37° C. for 15 to 20 minutes opsonic films are prepared and the phagocytic intake in each is counted. The ratio of the count obtained in mixture (*a*) to that in the control mixture (*b*) will give us a value for the "leuco-phagocytic efficiency" of the patient's blood. The ratio of the count obtained in (*c*) to that obtained in (*b*) will give us the *opsonic index* of the patient's serum. And, by putting up one more phagocytic mixture, in which both washed corpuscles and serum are derived from the patient's blood we may obtain also—by comparison with the count obtained in mixture (*b*)—a value for the total *phagocytic index* of the patient's blood. Where this "chiastic test" is carried out we apply the same working rule as was suggested above—viz., that if the leucocytic efficiency of the patient's blood is reduced to one-third or less of that of the normal blood, he is incapable of making immunising responses, and stands in need of immuno-transfusion.

In conclusion, we may perhaps recall Sir Almroth Wright's dictum, quoted in the first paragraph of this paper, that immuno-transfusion commends itself especially when all that the surgeon can do has been done. If a large abscess remains undrained, or tissues are retained which are so extensively infected as to flood the blood-stream continuously with overwhelming doses of bacterial toxins, we cannot expect to save the patient by a vaccine or by immuno-transfusion—or, indeed, by any method.

Choice of a Donor.

The requirements of immuno-transfusion do not differ from those of simple blood transfusion in this respect. For both purposes we employ a healthy individual, free from syphilitic, malarial, or tuberculous infection, having first determined that his or her blood is compatible with that of the patient—that is to say, that his or her red corpuscles fail to agglutinate when mixed with the serum of the patient. To test this we have only to obtain a very small drop of blood from the donor's finger, dilute it with three or four times its bulk of salt solution and mix with it a small drop of the patient's serum. If after three or four minutes the mixture still remains a homogeneous emulsion of corpuscles, we judge the donor's blood to be compatible with that of the patient; if, on the other hand, the red corpuscles have run together into clumps easily visible to the naked eye, we reject that donor and test another.

If circumstances prevent our thus matching the donor's blood directly against the patient's serum two courses are open to us. We may either employ any donor whose blood conforms to the characters of group 4 (Moss[*])—for the red corpuscles of this type of blood are not agglutinated by any normal serum—or, where it is known that the patient's blood belongs to a particular group, we may seek for a donor whose blood is of the same group. Although in theory there is nothing to choose between these two practices, it has been stated by some who have had considerable experience of transfusions that febrile "reactions" are less commonly seen after the injection of blood from donors of the same group as the patient.

Before leaving this subject it may be well to mention that we have sometimes heard doubt cast upon the necessity for testing the blood of the donor as to its "compatibility" with that of the patient. Medical men naturally hesitate to report unpleasant or disastrous results of treatment, with the result that it may occasionally happen that the dangers attendant upon a certain course of action are not widely realised. Transfusion of blood incompatible with that of the recipient patient is perhaps a case in which dangerous reticence has been practised. We therefore think it well to record the following experience. A patient who had twice been transfused with blood from compatible donors and had borne the transfusions well, required a third transfusion. As soon as the injection began—before even 20 c.cm. of blood had been given—he became very uneasy, complaining of severe burning pain all over. The breathing also became difficult. As these symptoms increased to an alarming extent and were accompanied by some collapse the injection was discontinued. The patient gradually recovered. On inquiry being made as to the cause of this untoward occurrence it transpired that in determining the group of two possible donors, the labels on the two samples of blood had been inadvertently transposed, with the result that a donor whose blood was incompatible with that of the patient was chosen. The conclusion that the symptoms observed were due to this incompatibility of the blood injected was substantiated by the fact that, a week later, after a trial injection of 20 c.cm., the patient was again transfused with blood of a compatible type and showed no symptoms either at the time or subsequently. We have had reported to us also another case where serious symptoms followed the injection of blood taken from a donor of incompatible group. We are not, however, in possession of complete details.

Immunisation of the Donor's Blood.

A word of introduction will perhaps help to explain our procedure. The old idea that a patient suffering from a very severe microbic infection might derive benefit from the transfusion of blood taken from a patient who had recently recovered from a similar infection has been revived during the last few years in a slightly modified form. Instead of taking the blood from the convalescent patient it has been proposed to take it from a healthy donor previously immunised by one or more inoculations of vaccine—either a vaccine prepared from the microbe infecting the patient, or the homologous stock vaccine. The assumption is made, of course, that the blood of the donor, when withdrawn for the transfusion, is richly endowed with "antibodies" having a specific (and destructive) affinity for the microbe infecting the patient. Cases treated in this way have been reported by Hooker,[3] Libman and Ottenberg[4] (1917), Fry,[5] Little[6] (1920). The chief defect of this method is that the donor has been inoculated without any previous test, and apart from such test it is impossible to say that the blood which has been used for the transfusion is in any sense immunised blood. It will be a matter for future investigation whether blood obtained in this way, and verified to contain protective substances, may not find useful application in the treatment of protracted septicæmic infections—e.g., cases of malignant endocarditis.

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[*] The method of ascertaining the blood group of any individual has been described by many authors; the reader may be referred to papers by Lee: Brit. Med. Jour., 1917, ii., 686; or Fleming and Porteous, The Lancet, 1919, i., 973.

The method of immuno-transfusion suggested by Sir Almroth Wright differs in several respects from that to which we have just referred. It took origin in the observation that the addition of an appropriate quantum of certain vaccines to blood in vitro, or in vivo, resulted in the elaboration of protective substances (as shown by increased bactericidal as well as opsonic power) *within a period of a few minutes to an hour or so.* These protective substances were derived from the leucocytes and were non-specific in character—i.e., they were effective upon all the ordinary pathogenic microbes—and not only upon that one species with which the blood had been vaccinated. It was this non-specific and rapidly evolved immunity which Sir Almroth Wright proposed to exploit for the purpose of immuno-transfusion.

We come now to the practical application of this proposal. Originally, as described by Sir Almroth Wright, we took a preliminary sample of the donor's blood and carried out with it a "vaccine-response test" in order to determine the dose required to evoke an optimum immunising response. Having obtained this information we drew off the half litre or more of blood required for the transfusion, added to it the appropriate quantity of vaccine and, after incubation for an hour, injected it into the patient. Early in 1922, with the gradual development of improved methods of testing the bactericidal power of the whole blood, we learned that immunisation was obtained somewhat more regularly, and in larger measure, if we incorporated the vaccine into the donor's blood in vivo (by intravenous inoculation) and waited one to two hours before drawing off the blood in bulk. More recently still we have ascertained that the subcutaneous inoculation of certain vaccines (staphylococcus, streptococcus, and *B. typhosus*) evokes within four or five hours in normal persons just as striking an immunisation of the blood as is obtained by intravenous inoculation.

TABLE I.

Experiment No.	Blood of—	Vaccine and dose inoculated.	No. of Staph. implanted in each sample of blood as shown by agar counts.	No. of colonies of Staphylococcus which grew in blood taken— Before inoc.	½ hr. after inoc.	2 hr. after inoc.	6 hr. after inoc.
1	L. C.	Stock staph. 1000 mill.	*(810) (270) (90) 30 (10)	51 13 3 1 0	66 23 4 2 2	8 5 1 1 0	9 4 1 1 0
				Blood taken— Before inoc.	5 hr. after inoc.		
2	K. F.	Stock staph. 1000 mill.	(2187) (729) (243) 71 30 15	137 38 17 2 2 1	58 16 2 2 0 0		
3	A. F. H.	Stock staph. 1000 mill.	556	†61 52 aver. 56·5	14 10 aver. 12		
			375	37 40 ,, 38·5	7 4 ,, 5·5		
			190	27 19 ,, 23	6 6 ,, 6		
			94	17 19 ,, 18	11 5 ,, 8		
4	C. B. D.	Stock staph. 1000 mill.	552	‡96 112 114 aver. 107	58 55 42 aver. 52		
			190	42 29 31 ,, 34	16 19 25 ,, 20		
			105	29 22 24 ,, 25	16 9 8 ,, 11		
				Blood taken— Before inoc.	1½ hr. after inoc.	5 hr. after inoc.	
5	L. C.	Stock *B. typh.* 250 mill.	(1270) (423) (141)	6 2 0	36 3 1	0 0 0	
					1 hr. after inoc.		
6	V. D. A.	Stock *B. typh.* 100 mill.	(1270) (423) (141)	60 10 2	82 15 2	1 0 0	
7	A. F. H.	Strept. (Strain "Paxton") 5 mill.	(400) (135) 51 12 4	21 4 0 0 0	6 0 0 0 0	13 3 0 0 0	

Staph. = Staphylococcus. *B. typh.* = *B. typhosus.*
Strept. = Streptococcus.

* The figures shown in brackets represent calculated, not actual, counts.
† Tests put up in duplicate. ‡ Tests put up in triplicate.

The experiments shown in Table I. will serve to illustrate this immunisation. In experiments 1 to 7 a series of normal individuals were inoculated subcutaneously with doses of vaccine as shown in the table. Samples of blood were taken from a vein in each case before the inoculation and at stated intervals after. Each sample was at once defibrinated. In order to compare the bactericidal power of the bloods taken before and after inoculation several 50 c.mm. volumes of each were mixed with 2·5 c.mm. volumes of a graduated series of dilutions of a staphylococcus broth culture, and then transferred to "slide cells," as described by Wright, Colebrook, and Storer.[2] After 24 hours' incubation in these cells at 37° C. the number of colonies which had grown in the blood was counted. They may be taken to represent the number of cocci which survived the bactericidal effect of the blood. Comparison of the number of these survivors with that of the cocci originally implanted, as shown in the table, will indicate the bactericidal effect achieved by each sample of blood.

The experiment given in Table II. is also quoted in order to illustrate a somewhat different procedure for comparing the bactericidal power of the bloods taken before and after inoculation. In this experiment mixtures of each sample of blood with living Staphylococci were prepared, as in experiments 1 to 7, but instead of incubating them for 24 hours in slide cells, each mixture was "explanted," after two hours' incubation, into melted agar at 47° C. and the latter poured into sterile Petri dishes. The advantage of this procedure is that it allows us to test the hæmo-bactericidal power upon microbes such as *B. typhosus* which do not grow into visible colonies in blood. We are indebted to our colleague, Dr. H. B. Maitland, for the record of this experiment and of experiments 3 and 4 above.

TABLE II.

Experiment No.	Blood of—	Vaccine and dose.	No. of microbes implanted in each sample of blood as shown by agar counts.	No. of colonies which grew in the agar infected with blood taken— Before inoc. Staph.	Before inoc. *B. typh*	5 hr. after inoc. Staph	5 hr. after inoc. *B. typh.*
8	J. K. C.	Stock *B. typh.* 100 mill.	297 133	165 51		91 31	
			724 238		160 73		40 35

If we total up the figures obtained with Staphylococci and *B. typhosus* respectively in this experiment, and work out the ratio of the number of survivors to the number of microbes implanted in the blood, we get the following result :—

	Staph.	*B. typh.*
With blood taken before the inoculation ..	50 %	24 %
,, ,, ,, 5 hrs. after ,, ..	28 %	8 %

By these and other similar experiments it has been demonstrated that :—

1. Within one to five hours after the subcutaneous inoculation of a normal individual with appropriate

doses of staphylococcus, streptococcus, and *B. typhosus* vaccines, the blood acquires a considerably increased hæmo-bactericidal power.

2. This increased power exerts its effect non-specifically. In experiments 5, 6, and 8 in which *B. typhosus* vaccine was inoculated, and also in experiment 7 in which streptococcus vaccine was employed, the blood shows increased power of killing Staphylococci. (Possibly this general statement will need some qualification. In one experiment—not quoted—after an inoculation of staphylococcus vaccine the blood showed only a very slightly increased power of killing *B. typhosus.*)

3. The development of the increased hæmo-bactericidal power seems to vary with the dose of vaccine. Using 1000 millions of staphylococcus vaccine, satisfactory results were obtained in every instance four or five hours after the inoculation, and in one case (but not in others) so soon as two hours after. (Possibly a somewhat smaller dose of this vaccine would immunise the donor as effectively and more rapidly.) When 250 millions of *B. typhosus* vaccine was inoculated there followed a period of one and a half hours at least in which the hæmo-bactericidal power to staphylococcus was diminished.

4. The increased hæmo-bactericidal power following inoculation has generally disappeared after 48 hours—sometimes after 24 hours. This is not shown in the experimental records quoted, but in one of them (experiment 7) it will be seen that after a very small dose of streptococcus vaccine the increased power was already waning after five hours.

In consideration of these findings we have, for the past few months, adopted the routine procedure of inoculating donors subcutaneously with 1000 millions of our stock staphylococcus vaccine,† and drawing off the blood after a period of four to five hours. Typhoid vaccine (100 millions) is apparently just as effective, but will occasionally induce a slight febrile disturbance in the donor.

Considerations which Favour the Use of Defibrinated Blood Rather than Unaltered Blood or Blood in which Clotting has been Prevented by the Addition of Decalcifying Agents.

In the course of recent work which will shortly be published,[7] the present authors have shown that an addition of sodium citrate, ammonium oxalate, or sodium phosphate to normal blood, in amount sufficient to prevent clotting, considerably reduces its power to kill Staphylococci and Streptococci, this result being brought about by impairment of some of the functions of the leucocytes. The same result is obtained with blood taken from an individual who has made an immunising response to vaccine. In view of this reduction of its bactericidal efficiency we concluded that blood to which decalcifying agents had been added should not be employed for the purpose of immuno-transfusion.

We come, then, to the question which of the two alternatives is best suited to this purpose, unaltered blood or defibrinated blood. Evidently unaltered blood has this in its favour, that it has lost none of its leucocytes; in defibrinated blood, however carefully the fibrin meshwork is collected, we never find more than 70 to 75 per cent. of the number present in the unaltered blood. It would seem, however, that this loss of 25 to 30 per cent. of its leucocytes makes but little difference to the bactericidal power of the blood. In the following table are set out the results of several experiments in which comparison was made between the bactericidal effects obtained with unaltered blood and defibrinated blood respectively.

In these experiments 50 c.mm. volumes of blood were implanted with 2·5 c.mm. volumes of a diluted broth culture of Staphylococci, and incubated for 24 hours in slide cells. The number of cocci which survived and grew out into colonies was as shown in Table III.

TABLE III.

Exp.	Blood of—	No. of Staph. implanted in each sample of blood.	No. of colonies which grew in the—	
			Unaltered blood.	Defibrinated blood.
• 1	A. F.	460	(3 tests) $\left.\begin{matrix}2\\7\\11\end{matrix}\right\}$ aver. 6·6	5
2	A. F. H.	318	(2 tests) $\left.\begin{matrix}3\\1\end{matrix}\right\}$ aver. 2	3
3	L. C.	130 approx.	0	2

It would appear, then, that from the point of view of providing the patient with efficient leucocytes it matters little or nothing whether we use unaltered blood or defibrinated blood for immuno-transfusion. Nor is there anything to choose between these alternatives in respect of the bactericidal power of their *fluids*. When the blood fluid has the power to kill Staphylococci this is found to be the same for the plasma and the serum.

When, however, we look at the question from the standpoint of ease and convenience in carrying out the transfusion our choice is no longer in doubt—we elect to use defibrinated blood. By doing so—in the manner to be described in the next sections—we avoid all difficulties which arise from the tendency of the unaltered blood to clot (and it follows that we can carry out the injection into the patient as slowly as we wish); we avoid the dissecting out and exposure of the veins of either donor or patient; and, finally, we do not require to have the donor in the immediate vicinity of the patient—indeed, he may be miles away. In a word, all the advantages which have been claimed in the past for the transfusion of citrated blood can now be claimed for the use of defibrinated blood: the one is just as easy as the other.

A theoretical objection to the use of defibrinated blood may occur to the reader. Remembering that for a short time after it is collected defibrinated blood contains active fibrin ferment (as shown by the rapid clotting of fresh blood to which a drop of defibrinated blood has been added) he may fear that the transfusion of blood of this kind might lead to intravascular clotting. This, however, is not the case, for it was established many years ago that fibrin ferment is quite inactive upon blood in vivo. The experiments which proved this were conducted, of course, upon animals, but there is no reason to doubt that they apply equally to man. As a matter of fact, transfusions of defibrinated blood have often been successfully carried out in the past (Bischoff, Halstead, Moss, and others); and during the past 12 months on more than 100 occasions by our colleagues and ourselves without the occurrence in any case of symptoms pointing to intravascular clotting.

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(*To be concluded*)

ROYAL SUSSEX COUNTY HOSPITAL.—On Dec. 13th Lady George Nevill opened the new orthopædic and X ray department at this hospital. The department was presented by the Joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem, and others, the main equipment having been provided by the transference of the valuable appliances from Lady George Nevill's war hospital at Hove. The announcement was made by Sir William B. Gentle that a sum of money would be devoted to presenting to the hospital a cardiographic department and to endowing the maintenance of the plant for the purpose, to be called the "Lord George Nevill Department."

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† Retailed by Messrs. Parke, Davis and Co.

ON THE USE OF OPIUM IN CARDIAC DYSPNŒA.*

BY CLAUDE WILSON, M.D. EDIN.

IN an extensive, though hardly an exhaustive, search through the literature of the subject, sundry notes have been found recalling the value of opium in various forms of cardiac distress, and a statement by Mackenzie that small doses at bedtime may avert attacks of cardiac asthma, but I have failed to find a record of cases analogous to those which I subjoin, while the fact that Prof. J. C. Meakins does not allude to opium at all in his recent B.M.A. lecture, at Dundee, on the Treatment of Dyspnœa in Cardio-Vascular Disease,[1] would seem to imply that its importance is not generally recognised.

Two Types of Dyspnœa.

Dyspnœa of cardiac origin may be divided clinically into two distinct types: Firstly, the ordinary dyspnœa as an immediate consequence of exertion is present in more or less degree in every case of heart disease. In intensity it may vary from a trifling augmentation of the ordinary breathlessness that any healthy subject may get on undertaking unusual effort, to an extreme condition when slight movements in bed produce breathlessness. Its mechanism is simple and well understood, and its amelioration depends on such general measures as may improve the cardiac condition, with additional relief from oxygen inhalation in extreme cases. Opium is in this condition a somewhat dangerous drug. In the lesser phases it is seldom called for; while in extreme degrees, though it may produce restful sleep, and consequent improvement, its administration may terminate in euthanasia. Still, there are cases where the risk may seem justified.

The second division of cardiac dyspnœa—quite different from the first, though commonly overlapping it—comprises two sub-types, both of them paroxysmal in incidence, seldom initiated, though often revived by immediate effort, and certainly differing in mechanism from the ordinary dyspnœa of exertion. How far the ætiology of these—Cheyne-Stokes breathing and cardiac asthma, so different in clinical picture—may possess a common factor, is for physiologists to determine; but that there is a common factor seems likely from the fact that the therapeutics of each is so similar. Oxygen administered in either case, and in sufficient quantity, will not only very generally give speedy relief, but if continued long enough will often terminate the vicious circle which has somehow been established and the normal respiratory rhythm will reassert itself. But, apart from well-equipped institutions, it is only in exceptional conditions that oxygen is quickly available —at any rate, in sufficient quantity to allow of anything like its adequate exhibition, and the object of this communication is to call attention to the fact, which does not appear to be widely known, that opium is not only in many cases an efficient substitute, but perhaps the treatment of choice. The method of administration has generally been hypodermic, not only to secure a more rapid effect, but because the gastric functions in these cases are usually so much disturbed that absorption by the oral route is uncertain. Morphine and omnopon have proved equally efficacious hypodermically, and occasionally tablets have been supplied to a patient to dissolve under the tongue.

In both of these varieties of paroxysmal cardiac dyspnœa, the cases in which I first used opium were such as presented symptoms so distressing and so alarming that the risk of death while under the influence of the narcotic appeared to be not only justifiable but a necessary one to incur. Since then I have used the drug in many cases of Cheyne-Stokes breathing, and in a still larger number of instances of cardiac asthma, and though the number is not sufficient to generalise upon, I have almost invariably found that a very moderate dose, and often a very small one, not only restored the normal respiratory rhythm—sometimes very quickly—but that orthopnœa was lessened or abolished, that the fluid exuded into the bronchi in the asthma cases was absorbed, and that these improvements endured for periods varying from days to months. Of course, general treatment, including restriction of effort and often digitalis, has been resorted to in each case between the attacks, but details of such measures are omitted from these notes, the object of which is to show the effect of opium on the paroxysms.

Opium in Cheyne-Stokes Respiration.

Cheyne-Stokes respiration varies from a slight undulation of the respiratory rhythm, occurring sometimes only during sleep, and seldom observed unless carefully looked for, to a rare and extreme degree in which the suffering from air-hunger during the height of the active phase becomes almost unbearable. My first was a case of this kind—an old gentleman of 94 years, who had suffered from symptoms of cardiac failure for some years, and had several times had mild bouts of Cheyne-Stokes breathing. On this occasion I called in by chance about noon to find him leaning forwards with staring eyes and open mouth, grasping the arms of his chair and gasping for breath. The gasps reduced in volume and intensity and died away, and there followed a few moments of apnœa when the patient leant back and closed his eyes. Then again began the active phase, and the eyes opened in terror and appeal for relief from the oncoming agony. I had morphine with me and injected a quarter of a grain; then left, paid a neighbouring visit, and came back 20 minutes later with a second dose ready to administer. But I found the sufferer leaning back on his cushions asleep, and breathing quietly and regularly. He slept for four hours, woke up and asked for tea. When I saw him later on he was in bed, feeling quite comfortable, and there was no further attack of Cheyne-Stokes for many weeks. By that time the nurse had both oxygen and morphine available, but the latter was never required, while the first was used but sparingly. He never had another severe attack.

I have seen but two cases of Cheyne-Stokes where the active distress of dyspnœa called for immediate relief, but I have given morphine to several patients for the relief of other symptoms, who, at the time of the injection, showed the respiratory undulations of minor Cheyne-Stokes; and I think in every case, as drowsiness supervened, the abnormal rhythm has been replaced by regular breathing.

In one case of advanced heart failure, both opium and oxygen failed to abolish the periodic rhythm, at any rate, more than temporarily. Oxygen, except for occasional short spells, seemed to worry the patient, but morphine brought sleep, relieved the orthopnœa, and reduced the Cheyne-Stokes rhythm from a major to a minor type. During the sleep induced by opium a mild stream of oxygen was allowed to play below the mouth and nostrils, and the breathing became so nearly regular that the wave character had to be looked for to be recognised, though with slight exertion on waking it became obvious. These conditions continued for two or three weeks. Oxygen was later on given pure or in high concentration from a nitrous-oxide mask, and by catheter in mouth or nostril during sleep for hours at a time. It seldom modified the wave character of the breathing, and never more than temporarily, while an attempt to influence the reflex by rebreathing, thus supplying a mixture of oxygen and CO_2, was resented by the patient, who knocked the mask away with his hand. As general signs of cardiac failure increased, and a fatal issue became obvious, morphine, the only drug which was found to give quiet sleep, was pushed till, near the end, when the Cheyne-Stokes character had assumed a major phase, and became a matter of obvious distress, 1 gr. doses were given every four hours. Under these large doses the wave character disappeared, and during the last 12 hours of life the breathing was regular in rhythm. Mucus, which during the Cheyne-Stokes phase had never caused râles, now accumulated in the lungs, and death appeared to be due to a lack of aeration, from semi-drowning.

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* Being one of the opening papers in a discussion on Cardiac Dyspnœa held at the Section of Therapeutics of the Royal Society of Medicine on Dec. 11th, 1923.

[1] Brit. Med. Jour., June 23rd, 1923.

Opium in Cardiac Asthma.

In cardiac asthma, though attacks vary much in intensity, the urgent call for relief of distress is often much more imperious than is common in cases of Cheyne-Stokes. I cannot doubt that morphine must frequently have been used in these circumstances, and that many practitioners must be aware of its signal value, but apparently very little has been put on record, though its effect in cases of "renal asthma" is, I believe, recognised. In two of the cases subjoined there was obvious Bright's disease, but it will be noted that the attacks of "asthma" did not develop until a definite cardiac element supervened.

My first case was recorded.[2] I append an abstract:—

CASE 1.—A gouty and nephritic retired clergyman of 71 years; breathless on mounting stairs for some years. Heart sounds pure, pulse regular—80–90. B.P. (systolic) 160–180. Sudden angina a month ago, with one or two recurrences. Other usual signs of cardiac failure. Without warning or obvious cause, one night, at 1 A.M., cardiac asthma suddenly developed. Arriving at 1.40 I found the family and two nurses assembled in the room or just outside anticipating death. The patient was raised on a pile of pillows; face and neck congested and cyanosed; hands and forearms cold, pale, and clammy; respirations 48 per minute—gasping; and pulse uncountable and very irregular. Heart in condition of "delirium cordis," no murmurs. Coarse mucous râles all over both lungs. 1.45 A.M.: Morphine gr. 1/3, with strychnine and digitalin, āā gr. 1/60, injected subcutaneously and oxygen administered from cylinder which had been got in for occasional relief of ordinary dyspnœa. 1.55: Aspect easier; respirations 36. 2.10: Comfortable; respirations 28; pulse about 100 and nearly regular. Slept or dozed all night. 8.0: Moving easily in bed without assistance. Pulse 82, regular; respirations 18; no râles anywhere.

Here we have obviously to do with a case of temporary auricular fibrillation, and I have seen other cases since in which the first attack of cardiac asthma apparently coincided with the onset of fibrillation. The therapy in this case was mixed, and the satisfactory result may have been due to more than one element; but subsequent experience makes me feel very sure that the most important factor was the morphine.

CASE 2.—Is of a different character. A spare ascetic man of 64, with a greatly enlarged heart and puffing murmurs accompanying both sounds, but not replacing either, and heard all over the heart. Pulse about 80 and regular. Blood pressure: systolic, 145; diastolic, 70. No albuminuria; attack of cardiac asthma of moderate severity developed suddenly about 2 A.M. When I saw him he was propped on pillows and very restless. Respirations 40; pulse about 100; frequent extra-systoles. Moist râles all over both lungs. Morphine gr. ¼ soon procured easier breathing, which in half an hour came down to 22 per minute, and the râles disappeared. He shortly lay down and went to sleep, and woke up quite comfortable in the morning. Similar attack a week later followed a similar course. It will be noted that no other drug was used, and that the rapid breathing, the orthopnœa, and the râles, along with the great restlessness and appearance of distress, subsided quickly under the influence of a small dose of morphine.

These attacks occurred in November, 1921, but only once since has he had an attack of the asthmatic type, and that a slight one, which again yielded promptly to the same treatment.

CASE 3.—An old lady of 76. Heart disease for years and fibrillating for over a year, but doing well on digitalis. No albuminuria; sudden attack of cardiac asthma about 10 P.M. without obvious cause. Urgent summons by telephone. Found patient propped on pillows, fighting for breath. Respirations 42; pulse about 90 and fairly regular; râles all over both lungs. Morphine gr. 1/6 injected, and in 20 minutes the respirations were down to 30. The discomfort gradually lessened, and in an hour and a half the patient went to sleep and slept well till morning, when she was found lying flat with two pillows. Pulse 74 and apparently regular; respirations 20 and no râles. That was three months ago and there has been no return of dyspnœa.

CASE 4.—A banker, about 54; renal disease of four or five years' duration. Blood pressure: systolic, 240–270; diastolic, 120–160; going about his business and sleeping well. Suddenly, about 5 P.M., developed auricular fibrillation and an attack of cardiac (and ? renal) asthma; orthopnœa; leaning forward in chair gasping. Pulse very rapid and irregular; respirations very rapid, about 45; râles all over both lungs. Morphine gr. 1/3, gradual relief; slept well. In morning was found sleeping with two pillows only. Respiration easy; no râles; pulse got steady and slow under strophanthus. This was four months ago and there has been no further attack of asthma, though ordinary dyspnœa is present on slight exertion, while orthopnœa and insomnia are always present unless controlled by opium. Morphine or omnopon (gr. 1/3) always gives a good night and abolishes the orthopnœa, and this is followed by two or three equally good nights. Then comes the gradual return of insomnia and orthopnœa, till on the sixth and seventh nights he sometimes fails to get any sleep at all, and lies propped up on pillows. Then he has another hypodermic, gets three or four good nights, and the process is repeated.

The above four cases are examples of cardiac asthma in somewhat different types of heart disease, in all of which brief notes were made at the time. They are sufficient to illustrate the effect of opium in these cases; but I have seen several others in which the same marked benefit has followed the same treatment; and such is my confidence in the happy effect, that were I ever to develop such a condition myself I should immediately inject morphine, were I well enough to do so.

Conclusion.

Since I wrote this paper it has been pointed out to me that in all the four cases recorded above mucous râles were noted, and indeed I purposely emphasised this element to show that opium was not, as used to be thought, contra-indicated in such cases. But the suggestion has been made that these cases may be properly described as acute pulmonary œdema, in which morphine seems now to be the accepted treatment. I would, however, submit that my cases are properly described as cardiac asthma. Minor cases occur with few, if any, râles; the cases are obviously of cardiac origin; the paroxysms, which commonly occur at night, are of asthmatic type; there is always orthopnœa; the dyspnœa, I feel pretty sure, precedes the moist râle; and the hyperpnœa is generally far in excess of what the bronchial exudation will account for.

Postscript.

In Sir James Mackenzie's book on "Angina Pectoris," published after this paper was completed, I find the first definite statement that a hypodermic injection of morphine may bring relief in cases of cardiac asthma—"as in the common forms of asthma"—the suggestion being that its action is the same in both cases. Of this I am not very sure. But another statement which appears to me to be of great interest follows (p. 109):—

> Many years ago I had an opportunity of seeing a number of these cases, and observed that before they went to sleep they had a tendency to Cheyne-Stokes breathing, and in one or two instances the attacks of asthma came on at the end of a long period of apnœa. It occurred to me that probably the cardiac asthma was merely an advanced stage of Cheyne-Stokes respiration. A careful study of my cases in subsequent years has convinced me that this is true, although I am not prepared to say that it is true in every case.

Though I have seen both types of dyspnœa in the same patient, I have not personally noticed this close conjunction, but I can well believe it is so; and the suggestion would seem not only to link up the two conditions, and help to explain the success of a common therapy, but also to throw light on the differences in the clinical picture. In Cheyne-Stokes breathing it is, I believe, generally accepted that the phases depend on alternate excess of oxygen and CO_2 in the blood: and, so far as I have noticed, there are few, if any, râles present. With the exudation that occurs in cardiac asthma—if of more than very short duration—there will be a physical impediment to hyperoxygenation, and consequently the hyperpnœic phase will persist, and not become automatically limited.

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[2] Brit. Med. Jour., 1913, i., 219.

Clinical and Laboratory Notes.

THE TEMPERATURE OF THE SKIN OVER LIPOMATA.

By Harold Burrows, C.B.E., F.R.C.S. Eng.

It is common knowledge that when a fatty tumour is palpated a sensation of fluctuation may be produced which is indistinguishable from that caused by a collection of fluid. A confused or mistaken diagnosis may arise from this cause if on account of its depth or for any other reason the lipoma cannot be readily recognised as such by inspection. For this reason any additional means which will help us to distinguish a fatty tumour from other swellings will be acceptable, and it is on this account that I wish to call attention to the fact that the temperature of the skin over a lipoma is constantly reduced when a comparison is made with due attention to symmetry and conditions of exposure. The relative coolness of the skin overlying a lipoma, as compared with that of a similar area on the opposite side of the body, is so considerable that it can be appreciated readily by palpation with the palm of the hand; and as a diagnostic aid is reliable.

As the test is by contrast only, care, of course, must be taken to make the comparison a proper one both as regards the parts which are compared and the time during which they have been exposed to the air prior to the examination, and it is especially to be remembered that appreciable differences of surface temperature are noticeable in different parts of the same limb. For example, the skin over the patella, in health and in natural conditions, is cooler than that over the quadriceps muscle; while the back of the calf is distinctly warmer to the touch than the skin where the tibia is subcutaneous. The reason for these differences is obvious enough, but they must be borne in mind when inferences are to be drawn from the results of palpation.

I suppose some apology ought to be made for calling attention to such a simple diagnostic aid. Probably generations of surgeons have employed it. Nevertheless I have failed to find any reference to the matter in print, and every help towards a correct recognition of the nature of a tumour may be of value.

Portsmouth.

A CASE OF RUPTURE OF THE HEART.

By J. Knox Thompson, M.B., B.Ch., B.A.O. R.U.I.

A male, aged 71, an inmate of Belmont-road Institution, Liverpool, complained on Oct. 12th last of gastric symptoms and debility. I sent him into hospital on that day, and he remained there until the 16th. When he got up on the 17th he asked to be allowed to go back to the house as he was feeling better. About midday he was sitting on a chair in the tailor's shop when he suddenly collapsed and died. At the post-mortem examination on the morning of the 18th I found the pericardial cavity filled with blood-clot, which was adherent to a small linear area on the anterior surface of the left ventricle, and when the clot was removed the breach in the wall of the left ventricle was marked by a few threads of clot adhering to it. The large blood-vessels and the valves were found to be intact, and no aneurysm was present. The heart was about normal in size, but the wall of the left ventricle was perhaps a shade yellower than normal. The rupture was not a straight cut through the wall; the channel was zig-zagged between muscular bundles on its way from the cavity of the ventricle to the surface of the heart, and the aperture was narrower on the inner side than the outer side. The liver was hob-nailed, and there was some sclerosis of the kidneys. The brain was normal.

Liverpool.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

Special Discussion on Chronic Abdominal Pain in Nervous Women.

A special discussion on this subject was held on Dec. 17th, Sir William Hale-White presiding.

Introductory Remarks.

Dr. R. Hutchison said that the cases under discussion did not exemplify any definite disease, but constituted rather what was generally known as a "clinical syndrome." He had described them as those of the chronic abdomen, and Dr. H. Cabot[1] had lately spoken of them as "those painful women." It had been difficult to decide on a title for the discussion; the one eventually chosen implied that the patient was a woman who complained of constantly recurring abdominal aches and pains, often referred to the right iliac fossa. She suffered also from dyspepsia, was profoundly constipated, and often passed mucus in the motions. Her menstrual functions were often deranged. In addition there were remote symptoms of various sorts—headache, "rheumatic" pains, tiredness, nervousness, and insomnia. The mental aspect of the case was often even more pronounced. The patient was depressed, introspective, self-centred, and peevish; was always dwelling upon and magnifying her symptoms, and had an insatiable craving for sympathy. She was a connoisseur in doctors, specialists, and "treatments"; she had often acquired the operation habit, and although any new therapeutic plan usually relieved her for a time the relief was always short-lived. The patient was undernourished, often of a bad colour, and exhibited a greater or less degree of visceroptosis. The stomach was usually atonic, and the gastric secretion rather subacid. There was delay in the passage of the contents through the intestine, especially in the pelvic colon. Displacements of the uterus were common, but the other organs usually presented no signs of disease.

The patient usually belonged to the upper classes; she was rarely met with in hospital practice. She was generally unmarried, or if married, childless, and there was often in her immediate environment some relative who ministered to her constant demand for sympathy. She would have seen many doctors, had probably had several operations, and would have undergone a great many more or less elaborate and expensive treatments without permanent relief to her symptoms.

Dr. Hutchison suggested that the discussion should be restricted to certain definite lines of inquiry, as follows: (1) To what extent were the abdominal pains in these women due to an organic cause, such as dragging upon nerves, kinks, and so forth? The results of surgical treatment should help us here. If the pains could be definitely and *permanently* relieved by operation, it was presumptive evidence that its cause was organic. (2) If not always or not entirely of organic origin, what was the cause of the abdominal sensations? Were they due to a low threshold for pain in these patients so that slight discomforts became magnified in consciousness, and, if so, how was this brought about? Or were they hysterical, a form of "convenient arrangement" as Adler had called it, the result of a subconscious desire for sympathy? The psychologists should be able to throw light on this aspect of the subject. (3) What was the relation of the physical to the mental state in these patients? Was the mental side of the case the result of the physical or was it primary? For example, was it the depressed emotional state in these patients that caused atony of the stomach and intestines, or did visceroptosis and atony lead to emotional depression? If the latter, why did many women with visceroptosis fail to exhibit any mental symptoms? The part played by the patient's environment in the development of the mental symptoms had also to be considered. Did these symptoms only appear in an atmosphere of idleness and aimlessness, or where there was an excess of sympathy on the part of relatives? It would be profitable to inquire also to what extent, if any, the artificial menopause which many of these patients had suffered was responsible for some of the mental symptoms. Gynæcological experience would be of value on this point. Or had the mental trauma inflicted by repeated abdominal operations anything to do with them? (4) As regards treatment, he thought there would be agreement as to the general medical lines to be pursued, especially as to the importance of recognising these cases in their initial stage, of subjecting them to a suitable fattening cure, with the provision afterwards of an efficient abdominal support, of avoiding drastic aperients, and so on. As regards drug treatment, everyone would admit the utility of the bromides, but he would like to raise the question whether anything could be done for these patients by the use of endocrine preparations. Here he confessed himself highly sceptical. As to surgical treatment, what needed discussion was the degree of *permanent* benefit to be obtained from the fixation of organs, and especially from colopexy. Finally, there was the question of psychotherapy. We wanted to know to what extent psychotherapists found these patients benefited by psychotherapeutic treatment, and what form of it was best suited to their needs.

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[1] Medical Clinics of North America, March, 1923.

The Tired Mother.

Dr. J. S. **FAIRBAIRN** said that his experience of abdominal women did not differ from Dr. Hutchison's, except in a few minor points. Besides spinsters or childless married women, he saw many with small or large families and some who could not be said to be comfortably off, with symptoms like those described. In addition to a general abdominal enteroptosis, there was, in women who had borne children, also some degree of pelvic floor weakness, but with subjective sensations of prolapse out of all proportion to the degree of prolapse actually present. Laxity of the abdominal and pelvic floor muscles though common was not invariably present. Constipation and mucous colitis were also frequent. These patients suffered also from over-doctoring and especially from having had fancy operations and fancy treatment practised on them. It was difficult to form a just perspective of the physical and psychical elements in these cases. They were regarded from almost as many aspects as there were healers of the body. The mechanical school would find an explanation in some usual or unusual position of the uterus or other organ; the chemical school would look for and find an auto-intoxication or some disturbance of metabolism; the Freudian psychologist would discover some repression or conflict. As to the mechanical school, their vision was confined to the anatomical position of organs and was blind to physiology. That school was the curse of gynæcology and was represented by those who did constant fixation operations and hysteropexies; nowadays, however, most gynæcologists admitted the large part played by the mental factor in making women over-sensitive to bodily sensations of a disagreeable kind. Spinsters and childless married women had, owing to our social system, been denied the exercise of the sexual and reproductive function and that in itself must have far-reaching effects, especially if there was no adequate complemental interest to take its place. But there was also another class, the women with children but with little help in caring for them. Long-continued impressions of the same kind without sufficient relief or distraction by other impressions of a totally different type were especially productive of fatigue. For example, the tired mother of four or five young children with little or no help in the house had few holidays, and they were but a change from her own house to rooms at the seaside, where escape from the children was even more difficult than at home. If in addition she had anxiety and sleepless nights nursing sick children or a sick husband, all the factors, mental and physical, were present for the production of chronic fatigue of the higher centres. Another type was that of the woman who after bearing her first child was described by her distracted husband as "never the same woman since her baby was born." She was of the disgruntled order, had abdomino-pelvic pains of varied kinds, and was incapable of exertion and particularly of doing anything she did not want to do, because it always aggravated her troubles. Such patients seemed to divide their anxieties between themselves and their one child, and though Dr. Fairbairn often advised another child, the advice was usually badly received. His experience led him to think that incapacitating abdomino-pelvic sensations of the same type might result in spinsters or childless married women from lack of complemental interests to make up for the absence of sexual and reproductive function, and in married women with children from mental fatigue, and further, that though the incapacity is often determined by muscular weakness it might be present without it. The gynæcologist had no statistical evidence of the proportion of women in whom the uterus lay backward, and hence its ætiological moment could not be estimated accurately. Many women had the uterus lying back with no symptoms, and many women with what was thought by the mechanistic school to be the symptom-complex of that position had the uterus in the normal anteverted position. These women for their restoration to efficiency required reassurance, relief from exacting duties, or fresh interests. The early years of the war with its new impressions temporarily cured many. Operations gave temporary benefit because rest and relief from everyday duties were then secured and an operation had an enormous suggestive effect. Physical exercises and improvement of the physique appeared to Dr. Fairbairn all-important. There was no royal road or dramatic cure, but much might be done by those prepared to give the necessary time and individual attention required.

A Neurological Classification.

Dr. J. **COLLIER** said that learned neurologists in the past had made an attempt to divide these cases into the following four groups: (1) Those in which the condition is without any other basis than the hysterical state; (2) those in which the condition includes a delusion of the insane type; (3) those in which the natural physical state is one of continual vigilance, apprehension, and fear and attention as regards bodily health; and (4) those in which there is a primary and real bodily cause for the trouble. The three last-named groups might overlap, but the hysterical group was, he submitted, quite distinct from the other groups. In his opinion the majority of the cases fell into the last group, in which a real physical cause existed. The hysterical cases were distinguished by the presence of the definite stigmata of hysteria, and however long lasting they were curable; when successfully cured they did not relapse. Dr. Collier quoted as an example a girl, aged 20, at present under his care, who had suffered over a term of years successively from hysterical hemiplegia, severe abdominal pain, vomiting, hæmatemesis, severe general wasting, and marked acidosis. Operation was contemplated, but Dr. Collier, called in at this stage, ordered instead careful watching night and day. It soon transpired that this patient lived much of her time with two fingers down her throat, with which she scratched her lower pharyngeal veins. The discovery of the fraud and the threat of forcible feeding if vomiting continued produced no resentment, but seemed to relieve the patient's mind, and she made a rapid and complete recovery. The most interesting point about this case was the loss of the deep reflexes from the bodily dyscrasia resulting from starvation. The cases with insane delusions were not very common. The group of cases where habitual self-vigilance and anxiety, without adequate cause, was the chief condition present were easy to distinguish. Hereditary and familial tendency was often strong, and an easily excitable temperament was always present. The subjects were usually careful livers, even valetudinarians, and might be able and successful workers. Their especial characteristic was the ease with which their symptoms could be temporarily removed by the assurance of any dominant personality for whom they had liking and confidence. The last group, from their symptoms and signs, impelled the conclusion that there was something wrong with the splanchnic region of the anatomy. It was, Dr. Collier submitted, universally accepted that all consciousness of well-being, all feelings of happiness, joy, and elation, of fear, anger, and sorrow, were derived from sensations in the area of the splanchnic viscera, nose, eyes, and possibly meninges; that these sensations were produced by definite bodily reactions, which could in some instances be perceived and registered by electrical methods. If the bodily reaction which depended upon the functional integrity of the organs in which it occurred did not take place, no feeling rose into consciousness, no emotion occurred. The importance of these emotions as the interests and stimuli of our daily lives was incalculable. Their importance in aiding a healthy action of our vegetative organs were doubtless equally important. Dr. Collier suggested that partial failure of the reactions in the splanchnic organs, and especially disorder in the normal production of these reactions, produced the almost ceaseless abdominal unrest and discomfort, the pain, cramps, disordered action, and secondary anatomical changes which were met with in the disease under discussion. The mental effect of these was immensely more important than that of common bodily disorders of sensation in that the former were disorders of the integral mechanism by which well-being, satisfaction, and peace in consciousness were maintained. The cause of such disorder was hypothetical and still to be sought, but Dr. Collier suggested that a metabolic dyscrasia with disorder of activation of the many elements concerned was likely to be responsible rather than any local abdominal condition, intoxication, or derangement of the nervous system.

Maladjustments.

Dr. **Crichton Miller** said that the phrase " nervous women " was vague in connotation, and unhappily extensive in denotation; it included some of the most exasperating cases we were called upon to treat. He did not propose to consider cases in which an anatomical factor might be ætiological, but before passing to the strictly psychogenic to refer to three groups that for convenience might be classed as functional. These might be referred to as the physically maladjusted. The first of these groups was the amyotonic; such women were apt to suffer from every variety of visceroptosis and therefore from many manifestations of chronic abdominal pain. Therapeutically they react well to rest and massage, but tend to relapse quickly after resuming a normal life and posture. Anchoring operations were only palliative, and in so far as the real ætiology of the condition was concerned had no therapeutic value. It might be that a failure of calcium metabolism was the central pathogenic feature; if this was so, the administration of calcium and parathyroid might be useful. The second group was the vagotonic—those in whom a chronic failure of the adrenal function produced a permanent dominance of the parasympathetic over the sympathetic, resulting in inadequate thyroid activity, loss of tone, low blood pressure, and what might roughly be described as " low vitality." The improvement of an impaired adrenal function appeared to Dr. Miller the primary indication in many nervous women. The third group was the sympathicotonic. In these an increased adrenal activity stimulated the thyroid unduly, all muscular tissue was overactive, and relaxation difficult. The treatment indicated for this group appeared to him pre-eminently psychological. An overactive adrenal function depended on emotional maladjustment, and implied, to his mind, repression with a strong fear affect that was continually stimulating the " fight or flight " mechanism. There remained the cases of psychological maladjustment. The conception of any sort of pain as " all imagination," even if true, was not a particularly helpful one from a therapeutic point of view. If a pain was " all due to the imagination " it was a hallucination, and people who suffered from hallucinations were entitled to treatment as much as those who suffered from a frankly organic condition. A diseased imagination was a morbid entity requiring treatment. There was no problem on which more light had been thrown by recent advances in psychology than on this. It was only by studying the unconscious mechanisms of patients that we could apprehend at all adequately the profound significance of pain as a defence mechanism. An incidental attack of gastritis or dysmenorrhœa might offer a defence of such value to the patient that she perpetuates the pain. To describe this as " all imagination " was grossly misleading, and to infer that by an effort of will the pain could be dispelled was grossly unjust. In certain cases pain served to perpetuate a state of dependence and self-pity as against the state of independence and self-help. Pain might serve as a defence for the married woman against sexual intercourse or parturition. Dr. Miller's experience had shown that at least an appreciable percentage of cases of chronic abdominal pain in nervous women benefited by being treated on analytical lines.

Experience at Duff House.

Dr. E. I. **Spriggs** said that on looking through his cases it appeared that out of 988 women patients admitted at Duff House, Banff, and at Ruthin Castle, in the last ten years, 82 were recorded as having been nervous and having complained of abdominal pain, roughly 8 per cent.; 31 of these had undergone one or more abdominal operations. From the 82 cases he had selected 54 in whom both nervousness and pain were specially prominent, and in whom a cause for the pain was not clinically obvious; and it was upon a review of these 54 cases that he proposed to found his remarks. His conclusion was that, even in very nervous, neurotic, or neurasthenic women, if the complaint of pain was definite, consistent, and persistent, and if, after watching the patient, he believed in the pain, then there was cause for it which sooner or later is found. A diagnosis of neurasthenia as an explanation of pain was generally wrong and always dangerous. Nervousness, of course, might be and often was a result of pain. Another diagnosis, almost as likely to prove wrong, was that of auto-intoxication, since it did not go back far enough. In a large proportion of cases named auto-intoxication, a definite mechanical or inflammatory cause was found. In no less than 32 out of these 54 patients, many of whom had been regarded as neurasthenic for years, some definite condition was found sooner or later to explain the pain. The series did not include patients with visceroptosis and constipation. In six cases adhesions were definitely present in the abdomen. Massage sometimes helped these patients, and also mild aperients with oil enemas. They were difficult to improve by operation. In a number of cases there was general loss of tone, constipation, sometimes with resulting colitis and visceroptosis, of varying degree. Dr. Spriggs did not think that the low position of viscera was the cause of the constipation, &c., but that both were attributable to the poor nervous and muscular tone; we should not, therefore, expect an artificial fixation to cure the condition; and, in his experience, it did not. In the first place these operations were frequently ineffective. That the pain, nervousness, and auto-intoxication were commonly due rather to the lack of function or irregular function of the bowel than to its dropped position was shown in two ways. Firstly, by the result of treatment. It was remarkable how much could be done for these sufferers if time enough was given. The first step in the cure was the elimination, so far as possible, of the suspicion of more serious causes of pain; this alone gives the patient help and freedom from anxiety. Then came rest, fresh air, an anti-constipation diet, the inculcation of a proper habit, gastric or intestinal lavage, as the case may be, massage, abdominal exercises, sometimes the faradic current, suitable medicine, but not chemical aperients, and in due course increasing outdoor exercise. The first step towards recovery was the relief of constipation without drugs, other than paraffin. The answer to the contention that many people are not able to give the time or bear the expense of investigation or such prolonged treatment was that other and ineffective methods cost in the end more. Patients continually spent more time and money on visits to foreign resorts, voyages, special treatments, and operations of various kinds than it would take for them to be treated by their medical advisers at home or in a hospital continuously, perhaps monotonously, but effectively. In those rare cases of constipation and visceroptosis who did not yield to treatment, the bowel having lost its power of recovery, Dr. Spriggs considered the excision of the inactive part of the large intestine. Of two such patients in this series, one was found to have the muscle of the ascending colon largely replaced by fibrous tissues; she received much benefit from removal of the ascending and most of the transverse colon. The other patient, who was the subject of great visceroptosis and a constipation which proved intractable, unfortunately died from pulmonary embolism after colectomy. Even in the group of cases, of which there were five examples in this series, of women whose nervous and physical state was the direct result of psychical over-strain, it was remarkable how much good could be done by rest and treatment of physical disorders of the abdominal viscera. In conclusion, he suggested that no patient should be branded as primarily psychopathic or mental until physical causes of ill-health had been eliminated. If some definite disease not curable by medical means were found, the surgeon's help should be obtained at once, as a continuance of pain which could not be otherwise relieved added to the neurosis. It was wrong, however, to operate first and investigate after, since ineffective operations made these people worse. He held strongly that operation should not be advised for constipation and visceroptosis, unless the result of adequate and prolonged treatment had shown that the bowel was not capable of passing on its contents in a reasonably normal time.

A Physical Camouflage.

Dr. **MILLAIS CULPIN** said that from the point of view of the psycho-pathologist there were two dynamic factors in psycho-neurotic symptoms: (1) those arising through bodily changes induced by emotion, and (2) those having an end in view. Dr. Izod Bennett had done experiments in which he had tested the gastric and other secretions after inducing a state of fear under hypnosis, and had shown that the secretions were profoundly altered. It must be remembered that the nervous woman was suffering from a continued unpleasing emotion; we must not overlook the effect of a continued emotional state in producing secretory changes. Motor and secretory disturbances induced by a continued state of anxiety formed one factor in the production of chronic abdominal pain. More important still was the relation of visceroptosis to the anxiety state. Attention had recently been called by Dr. Hector Cameron to the "stance" of certain nervous children—drooping shoulders, sunken chest, lordosis, protuberant abdomen. This stance was familiar also in the nervous adult, and Dr. Culpin suggested that when uncorrected it led to visceroptosis. The second group comprised those patients in whom symptoms had an end in view. A common one was that of obtaining sympathy. Attention was always paid to physical pain by friends, whereas nervous or mental symptoms were not received sympathetically. Since patients with such symptoms had little prospect of help or understanding they were forced to take refuge in the physical symptoms which their own emotions provided. Even if obsessions were not cured the symptoms could with advantage be pushed back to the plane where they belonged, and the patient removed from the category of the chronic abdomen. There was present in most psycho-neurotics a strong tendency to hide their symptoms under a physical camouflage. Anxiety might not be present to the consciousness. Dr. Culpin quoted a patient with mucous colitis, which was emotionally determined by complicated factors. During treatment on analytical lines she said, "I used to think it was a physical disease; looking back I see it was only an excuse." Dr. Culpin pointed out also the importance of the absence of psycho-neurotic symptoms in regard to diagnosis. He had twice recommended exploratory operations in women sent to him for treatment of "neurotic" abdominal pain when he was satisfied of the absence of psycho-neurotic symptoms; in both an organic lesion was found.

He summed up with the following two propositions: (1) A continued emotional state induces physio-pathological changes in the abdominal viscera. These involve secretion, mobility, and position. It is to such changes that the word neurosis may perhaps be properly applied. (2) The symptoms first produced may be used purposefully by the psycho-neurotic patient. The purposes are of infinite variety. The one against which we as clinicians ought to be on guard is the concealment of anxiety or obsessional symptoms which it is our duty to elucidate.

Dr. J. A. **HADFIELD** said that his experience was limited to hysterical cases—namely, those in whom nothing organic can be found or which are declared to be cured after treatment by physicians and surgeons. Three facts had been generally recognised by medical men in reference to hysterical pains. First, that they had no adequate physical basis. Here a distinction should be made between an organic *origin* and an organic *basis* of hysterical disorders. Most hysterical pain could be traced back to an organic origin, such as inflammatory conditions. But such pains did not necessarily have an organic basis, since the original sensation of pain could, like any sensation, be reproduced as an image. Secondly, the significance of sexual desires had long been recognised in the very name hysteria. Thirdly, long before the Freudian psychology it was recognised that hysteria was frequently the result of the suppression of sex desires. This was expressed in the advice of many physicians to hysterical girls, "All you need is to get married." This was bad advice, for in fact more hysterias were precipitated than cured by marriage. But it nevertheless signified that physicians recognised the significance of sex suppression. What, until the Freudian psychology, we had not realised was that the sex desires which lay behind the hysteria might be quite unrecognised by the patient herself. Behind every hysterical pain there were two factors: First, there was usually an organic origin to the pain; secondly, there was a motive. Illustrations of such motives were a craving for sympathy, jealousy, masochism, and sex traumata. Hysterical pains were of the nature of "gadgets"—i.e., instruments that are employed for a purpose different from that for which they were originally intended. The patient used the hysterical pain for her own ends, whether to obtain attention or sympathy, or to enable her to tyrannise over the household.

SECTION OF ORTHOPÆDICS.

MYOSITIS OSSIFICANS TRAUMATICA.

A MEETING of this section was held on Dec. 4th at 1, Wimpole-street, W., Mr. R. C. **ELMSLIE** in the chair. Cases and specimens were shown previous to the discussion, which was also illustrated with slides.

Exhibition of Cases.

Mr. A. H. **TODD** showed radiograms of a patient's right elbow, injured in a laundry hydro-extractor, with resulting dislocation of the ulna, tearing apart of ulna and radius, and comminuted fracture of the head of the radius. After some weeks' rest in a rectangular splint, massage and movement were applied; pronation and supination were then entirely lost. Plaster fixation was thereupon applied for five months; two months later radio-ulnar arthroplasty was performed and a complete bony bridge was found; the remains of the orbicular ligament had been ossified, and there was a plaque in the anterior part of the capsule of the elbow-joint. The radiograms showed the gradual increase in ossification, followed by its cessation and sharp delimitation.

Mr. W. E. **TANNER** showed a bony plate removed from a patient who had had a hydatid cyst excised from the under surface of the liver through a right lateral incision. The wound had discharged for three years and then healed. Later the patient began to have pain after meals; a laparotomy above the umbilicus revealed no sign of hydatid disease, but a hard plaque was felt beneath the scar, and the patient was readmitted to hospital with epigastric pain. The epigastric bony scar plate was found lying in the sheath of the rectus and excised. The peritoneum was excised and no adhesions found, but there was a gastric ulcer high up on the lesser curvature of the stomach. Partial gastrectomy was performed and the patient was discharged. The bony plate measured four by one and a half inches; the anterior surface was smooth, but on the posterior surface was a boss of bone to which the rectus was attached.

Mr. K. J. **ACTON DAVIS** showed a case of bilateral myositis ossificans in an amateur footballer, aged 19, who received a kick on the outer side of the left thigh in the lower third, and was treated with massage until arrival at hospital six weeks after with a bony swelling at the site of the kick. X ray showed myositis ossificans in vastus externus. The patient had rest for some time, and then played football without any disability. A year after the first kick he received another on the right thigh; there was effusion into the joint and a very large hæmatoma on the anterior aspect of the middle of the thigh, with ecchymosis extending along the line of the vessels on the inner side. A small tear was felt in the fibres of the quadriceps in front. The patient now has definite hardening on the outer side of the thigh, which feels bony. Nothing is yet shown by X rays.

Mr. W. B. **FOLEY** showed a case of myositis associated with new bone formation in a patient who had received a bomb wound in the right upper arm and was operated upon shortly afterwards, a retained piece of metal being removed. There was no history of the use of a tourniquet. Three days later the whole of the arm became acutely painful and swollen. The swelling presented the features of a diffuse acute inflammation of the muscles, but did not proceed to suppuration. Similar attacks occurred many times afterwards. Six months after the wound was received new bone formation was observed in front of the humerus, limiting movements at the elbow-joint. This bone, removed by operation, was stated to have measured 5¾ inches in length. When seen by Mr. Foley ten months after receipt of the wound the patient was admitted to hospital for recurrent inflammatory attacks. Later in the year an X ray showed a recurrence of bone formation in front of the humerus. A Wassermann reaction was strongly positive, and an intensive course of N.A.B. was given. The limitation of movement became prominent again, and in August, two years after removal of the first bony mass, the second mass was removed and found to be definitely submuscular. A specimen of the muscle showed a fibrotic condition, with calcareous deposits. The range of movement was much improved by the second operation.

Introductory Paper.

Sir **GEORGE MAKINS** said that he would throw no new light on the condition of myositis ossificans traumatica, but would make a few dogmatic statements as to what was included under the title of the subject. The appropriateness of the name was frequently questioned; it was, in fact, an obvious misnomer. The condition was not one of inflammation, being rather an example of the process of repair. Muscle played only a passive part in it. Traumatic osteoma, myosteoma, and other names were used for these tumours, which in no respect resembled osteomata. An osteoma did not become absorbed again; some hard osteomata might eventually slough or necrose, but their spontaneous disappearance was unknown. But these wandering masses of callus within muscle were not comparable to a tumour of bone.

Various Forms of the Condition.—The "occupational" forms of the condition should not be included in the class of tumours following injuries to muscle; they depended on the awakening or renewal of the original process of the formation of bone. These bones, such as rider's bone, were usually found in the origin of a muscle. They might extend widely into the muscle, but as a rule were compact, very loose, and cancellous, generally—and in the brachialis anticus nearly always—in the form of pointed spikes. Thus they were not the same as the masses of bone found, for instance, after injury in front of the thigh. Then there was the metaplastic form, found in tabes, of large masses of bone following trauma. The injection of salvarsan into muscle might produce this form. Again, there was the question of excessive callus production after fractures; persons who showed this exuberant callus formation might have the same idiosyncrasy as those who developed ossification within muscle.

If the term was to remain in use, he suggested that myositis ossificans traumatica be limited to cases in which three essential factors were present—broken periosteum allowing the escape of bone cells, hæmorrhage, and a certain amount of injury to muscle. In the tearing off of periosteum there was hæmorrhage from the canals, which helped the diffusion of bone cells into surrounding tissue; the blood formed a nutrient medium in which bone cells might remain vital and develop, and also determined the future architecture of the tumour. The shape of the latter was determined by the sheath of the muscle. The blood, going into the muscle as a foreign body, excited a reaction, and the muscle offered a highly vascular bed in which a tumour might develop.

Morbid Anatomy and Pathology.—The microscopic interest of the condition lay, he said, in the possibility of metaplastic formation. Was the cancellous bone derived from bone cells set free by trauma, or from cells originally undifferentiated which took on bone form and function? He thought that in the main the cause lay in cells set free from injured bone. Coming to the pathology of the condition, they were entirely ignorant of the reason for its development. In this connexion must be considered the over-production of callus after a fracture; it was said that defective fixation or infection might produce defective callus. Over-production of callus was the rule, but not to a great degree, and in spite of correct treatment myositis ossificans sometimes developed. It was said that patients who developed the condition belonged to a diathesis, but that carried the question little further. It had also been attributed to excessive calcium content in the blood, but that view remained unproved. Cohn, in his observations concerning the deposition of lime salts, held that lime salts were really conveyed by the lymphatic system—that bone supplied these salts to callus, and callus eventually gave them back to bone. In tabes there was also rarefaction of bone; this might have some connexion with myositis ossificans traumatica. The real explanation would probably be reached in the future, when more was learnt of the bodily growth governed by such endocrine glands as the pituitary. The association of two tissues of different kinds might result in the formation of bone. Dr. Drew had shown that kidney cells grown in vitro would develop indefinitely, but that if connective tissue were added the kidney cells would arrange themselves inside this tissue, and a piece o organised kidney would develop.

Diagnosis and Treatment.—Sir George Makins had nothing to say concerning diagnosis. If the condition were limited to cases of ossification within muscle, it was difficult to go wrong if X rays were employed, for these tumours did not resemble any form of sarcoma. As regards treatment, the majority of cases could be treated by rest and by doing nothing to increase the supply of blood to the part. As a rule the tumour would then disappear. Sometimes a scar was left, or operation might be necessary to increase the range of movement. Operation should be deferred for perhaps three months to see if the condition cleared up spontaneously.

Discussion.

Mr. **Elmslie** commented on the large number of situations in which the condition was found. Peri-arteritis ossificans mght occur with or apart from ossification in muscle. Ossification was sometimes brought about by attempting to move a joint too soon. Legal actions were not impossible in this connexion. Remarking on the occurrence of ossification in muscle apart from any known bone injury, he thought these might be due to partial evulsions of muscle. Ossification also sometimes occurred after sepsis, for example, beneath a scar resulting from a puncture made to let out pus from a pyæmic abscess of muscle. In considering the possibility of metaplasia the essential unity of the osteoblast and fibroblast must be remembered. There was some suggestion that bone might be formed direct from fibrous tissue without any escape of bone cells. He thought it very seldom justifiable to operate within the first three months; personally, he watched until the X rays showed no alteration for a month before resorting to operation. He believed it best only to operate for mechanical obstruction.

Mr. W. R. **Bristow** showed slides illustrating ordinary myositis ossificans of the vastus internus, where there was no question of trauma. In one case severe pain occurred and quietened down, only to recur two years later, with extreme wasting of the leg, and a mass of very tender bone. No treatment was of any effect in this case. Another case, exemplifying the length of time the condition might take to clear up, was of a supra-condylar fracture of the elbow in a child; he had kept the elbow at rest for five months, after which the condition had quietened down. He emphasised the importance of teaching concerning this treatment, which was known to members of the section, but very little known outside. He wished to know if anyone could show a case of true myositis ossificans of the brachialis anticus which had been left for some time and then operated upon *with improvement.* He had never found any benefit to the patient to result from operation; the bone merely consolidated down to exactly the same state once more.

Mr. H. A. T. **Fairbank** supported Mr. Bristow's view of the importance of instruction on the subject of treatment. He believed the average general practitioner to be poorly informed in that respect, and instanced a case of forcible bending of an elbow-joint by a practitioner, to whom he had written on the subject, only to receive from him another case which had been treated in the same way. Massage did no harm, but active movements were most useful. Almost always the mass of bone seemed at first to be separate from the main bone, joining it later, and giving the appearance of periosteal thickening. At operation he had found the periosteum complete beneath the bony mass which he had removed.

Mr. **Alan H. Todd** described a case of ossification upon the front of the femur, situated apparently in the lowermost part of the origin of the crureus. The patient was a woman of 25, who had an oval loose body lying just beneath the middle of the patella; the knee was opened and the loose body found to be attached by a slender thread, apparently not vascular, to the synovial membrane of the intercondylar space. The loose body was symmetrical and oval, composed of intermingled cartilage and bone; nothing was seen that suggested that it had originated in any injury of articular cartilage or bone. An unusual amount of stiffness of the knee following the operation, it was found that a mass of new bone had formed upon the front of the femur, probably in the origin of the crureus. The limb was completely immobilised, and subsequent X ray examinations revealed the gradual increase in amount, density, and sharpness of delimitation of bone. A year after operation a full range of movement had been restored. Mr. Todd also showed a second series of radiograms, those of a man of 43, injured in the elbow region, without fracture, in a motoring smash. The ossification that had followed mapped out with remarkable accuracy the precise attachments of the anterior and posterior ligaments of the elbow-joint, and the orbicular and other ligaments of the radio-humeral and radio-ulnar joints. Mr. Todd observed that though these ossifications following upon injury had been spoken of as "callus," it appeared to him that this term was used upon totally inadequate grounds. It seemed to him to be preferable to term these formations simply "post-traumatic ossifications." Again, why was there such an extraordinary preponderance of these ossifications in the region of the elbow? Elbow injuries were very common in growing children, but that was not enough to explain the great frequency of post-traumatic ossification in this situation, as compared with all others. It seemed to him that an anatomical peculiarity of the elbow region was probably the true explanation. The islets of cartilage cells, and sometimes of bone cells, found widely distributed through the synovial membrane and even the capsule of the elbow and radio-ulnar joints, were not confined to growing children; they were to be found, also, in adults, just as many other "rests" of embryonic tissue were to be found in persons in whom growth had long ceased. Post-traumatic ossifications, apart from gross bone injury, in adults, were probably examples of activation of rests of chondroblasts or osteoblasts.

Mr. **Tanner** supported the view that the way to ensure the disappearance of extraneous bone was to rest the part.

Sir **George Makins**, in a brief reply, characterised as rash his remark about operating after an interval of three months; his own feeling had been to let things alone.

Mr. C. **Max Page**, Dr. W. T. **Gordon Pugh**, and Mr. P. **Maynard Heath** also contributed briefly to the discussion, and Dr. C. **Lambrinudi** read a short communication from Mr. W. H. **Trethowan**.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASE.

The Working of Venereal Centres.

A meeting of this Society was held at the rooms of the Medical Society of London on Dec. 7th, Dr. F. N. **Kay Menzies** being in the chair, when Colonel L. W. **Harrison**, the incoming President, delivered his address. He said it was the proud boast of the profession that though its members lived by disease, their ideal was to abolish disease. The principle of prevention of venereal disease by treating the infected underlay the chief recommendations of the Royal Commission on Venereal Disease, and was at the foundation of the Government scheme of free treatment. The scheme had three main sections: (1) Propaganda to induce the infected to apply for treatment and continue with it until non-infected; (2) discovery of infected persons; (3) their treatment until the virus had been rendered inert. Many of those engaged in this work seemed not to have fully realised that the prime motive of their enlistment was the protection of the public health. In the remarks he had to make it was inevitable that there was some criticism of many of the V.D. centres. There was at present a tendency to restrict the outlook to the particular patient, regarding him as a focus of infection needing to be sterilised. It was beneficial periodically to take stock of the situation to see how the work could be improved and speeded up. To those commissioned to establish a centre he would suggest that the chief aims should be attractiveness of the centre, with efficiency and economy in the working of it. If amenities were very poor, this did not conduce to attendance until discharged, and it would be poor economy if the arrangements resulted in only partial treatment. The average patient with these diseases was ashamed of his condition; hence it should be possible for him to reach the centre without people outside being too much aware of his object. As soon as urgent symptoms disappeared, there were serious competitors for his leisure time outside; hence the times of attendance should not clash with these other amusements; it was not desirable to require attendance on Saturday afternoons, for instance. Larger rooms for the actual work, and smaller waiting-rooms were generally desirable; it was not good that a large number of patients should be kept waiting. Also, every centre should make provision for the intermediate treatment of gonorrhœa. Better and quicker results were obtained in female cases of gonorrhœa when the treatment ordered by the medical officer was carried out by a nurse. And, to be of value, the patient must attend the clinic frequently; hence the importance of arranging times convenient to her. Too often it was assumed that patients would gladly attend at whatever times were set, at whatever inconvenience to themselves. Sometimes it seemed to have been thought too ambitious to embark on new premises, or even to have some rooms set apart entirely for the treatment of venereal diseases. And it should be remembered that gonorrhœa was much more prevalent than syphilis, and the proportion of defaulting sufferers from it was greater. He thought a V.D. centre under the public scheme worked better under one control than when it was distributed over a number of departments; apart from other considerations, it was a more economical plan; the work was better coördinated, and the public health outlook was more likely to be fostered. The number of nurses and male attendants was, in most cases, too small, and duties had to be done by medical people which could safely be left to nurses and male attendants. A trained lady almoner was a most valuable asset in a large treatment centre.

Colonel Harrison remarked that as to the means of following up patients who ceased to attend before they were considered non-infective, it was said that follow-up letters sometimes fell into wrong hands and caused domestic trouble, but a careful consideration of the matter led him to favour the sending of such letters, followed, if no response was received, by another worded more definitely. An important factor in the work was the tracing of contacts; and this could be much aided by tactful questioning of patients as to who infected them. If the medical officer of the treatment centre would place his knowledge at the disposal of the medical officer of health, improvements could be made in propaganda and in methods of advertising. When the private practitioners of the country realised the many ways in which they could help the efforts of the public health service in securing the treatment of the greatest number of infected persons, he, the speaker, thought the necessary effort would be forthcoming, and the practitioner had many opportunities of telling his public how important it was for infected persons to be treated as early as possible and until they were no longer infective. Along this path lay the establishment of a saner attitude on the subject on the part of the general public.

Discussion.

The CHAIRMAN agreed as to the desirability of having an ideal in treatment, especially in regard to treatment of venereal disease. He himself visited 28 such clinics in London, and had often asked himself wherein they failed to attain the ideal, and why. These clinics were often overcrowded; he had seen 100 patients waiting, and this did not help continuous treatment, especially as women patients objected to long contiguity with some others. He advocated the establishment of day clinics; he thought the results would soon justify the step. Colonel Harrison's clinic at St. Thomas's Hospital dealt with 4559 new cases last year, and there were 149,682 attendances, respectively 20 per cent. and 30 per cent. for the whole of London. He thought the V.D. work of a hospital should not be delegated to a junior member; the officer responsible for this department should have a place on the hospital staff.

Dr. LEONARD MYER said the attendance at St. Paul's Hospital clinic was about 20,000; patients could attend on Sunday.

Dr. J. C. BUCKLEY spoke of the difficulty of getting doctors and trained orderlies or nurses for this work in Nottingham. In his clinic the gonorrhœa treatment was kept separate from that of syphilis. A good point about the clinics was that the patients remained under the same doctor. In his establishment there was in operation a thorough system of following up patients who grew lax in their attendance. The irreducible minimum of patients who would not continue attendance was only 12 per cent. It was insisted that attendance must continue until the patient was discharged cured; if he moved to another town, he was given a transfer to the clinic there.

Dr. F. H. LAWSON gave his experiences at the Brighton and Worthing clinics. At the former there were six clinics a week, at the latter two. There was a close and cordial working arrangement with the medical officer of health.

Reply.

Colonel HARRISON, in reply, said that at present there was too much working in watertight compartments. The medical officer of treatment centres could be of real use to the medical officer of health, and vice versa. He believed the St. Thomas's clinic would this year reach a total of 120,000 attendances. The cost per attendance at that centre was 1*s.* 5½*d.* The price of materials for female gonorrhœa subjects was considerable; it was very small for males. With regard to the conference at Copenhagen, it was a great inconvenience that the results of serum tests were reported in different terms. It was most important to have standardisation, especially in the case of merchant seamen and others who travelled over the world. In May, 1921, a resolution was passed at Copenhagen requiring that the blood tests of various countries should be compared with one another; and the first-fruits of that was a London Conference, under the ægis of the League of Nations Health Organisation, at which it was resolved that in a number of European laboratories a comparison should be made of the various methods of testing serum for syphilis. Attention was specially devoted to the sigma test, as standardisation of that would give quite smooth results.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Dec. 5th, Sir DAVID WALLACE, the President, being in the chair.

Exhibition of Clinical Cases.

Dr. MARY H. MACNICOL showed a case of multiple arthritis in an infant following ophthalmia neonatorum. Dr. J. V. PATERSON did not regard the evidence of ophthalmia neonatorum as conclusive.

Mr. DAVID LEES showed four cases of interstitial keratitis treated by intramuscular injections of bismuth. He considered the results to be more satisfactory than those obtained with arsenical salts.

Dr. W. T. RITCHIE showed a case of progressive lipodystrophy in a female, aged 24, single. The disease, which was neither hereditary nor congenital, began at the age of 11 by the face becoming thin. The thinness of the face was progressive for two years, and was subsequently stationary. The face, arms, and trunk down to the level of the iliac crests were very thin by loss of subcutaneous fat; the gluteal regions, thighs, and legs were plump owing to excess of subcutaneous fat; the muscles were healthy. There was no evidence of disturbance of function of the thyroid, pituitary, pancreas, ovaries, or suprarenals. The case was a typical example of the rare disease, first observed by Osler in 1895, and designated lipodystrophia progressiva by Simons in 1911.

Dr. R. A. **Fleming** and Dr. **James Davidson** communicated (1) a case of acute myeloblastic leukæmia. Clinical notes of the case were given with lantern slides showing mitosis on blood films and the pathological changes in the various organs. (2) A case of aplastic anæmia. Notes were given and lantern slides of the pathological changes were shown. Prof. G. L. **Gulland** and Dr. **John Orr** discussed the diagnosis and treatment of the cases.

Dr. A. **Nimmo Smith** and Dr. A. **Fergus Hewat** gave a communication on the

Complement-fixation Test in the Diagnosis of Tuberculosis,

with special reference to pulmonary tuberculosis. The principles on which the test is based were outlined and reference made to the variation in methods of technique. The technique employed in a series of 400 cases was briefly described. The results of the tests were grouped under five heads: (1) Where *B. tuberculosis* was present at the time of the test; (2) cases of clinically active tuberculosis but without bacteriological evidence; (3) cases of clinically inactive tuberculosis; (4) non-tuberculous cases where the Wassermann reaction was positive; (5) patients suffering from diseases other than tuberculosis and where the Wassermann test was negative. In "sputum positive" cases between 80 and 90 per cent. gave a positive reaction to this serological test. In some of the remaining cases the negative result might be explained by low resistance and the absence of formation of antibodies. In a few cases of definite tuberculosis the reaction remained persistently negative. No explanation of this could be offered. The conclusion drawn from the results was that in doubtful cases a positive result was of value, but a negative result could not be regarded as evidence of the absence of tuberculosis.

In opening the subsequent discussion, the **President** read a letter from Sir Robert Philip, who was unable to be present, in which he confirmed the views expressed. There subsequently spoke Dr. A. **Rutherford**, Dr. H. **Richardson**, and Prof. T. J. **Mackie**, the latter considering that the test was only of confirmatory value.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A meeting of this Society was held on Dec. 13th, Dr. **Eliot Curwen**, the President, being in the chair.

Exhibition of Cases and Specimens.

Dr. **Neville Cox** showed a case of hereditary deforming chondrodysplasia in a girl aged 13. Deformity and disability in the use of one forearm began about the age of 9, and have been increasing. Recently similar changes in the other forearm had begun to appear. There was difficulty in fully extending the elbow and in supination of the hand. The X ray showed bowing of both bones of the forearm with displacement of the upper end of the radius, and irregular bone formation and bony projections from the lower end of the shafts of both bones adjoining the epiphysis. There were also bony outgrowths on the inner side of the head of each tibia. The child was knock-kneed, and had slight lateral spinal curvature, but otherwise was in good health. None of her three brothers and sisters were affected, but the father had similar bony outgrowths on the tibiæ.

Dr. H. M. **Galt** showed microscopical slides of a section of normal vagina, normal Fallopian tube, and normal endometrium; two sections of polypus of nose; a section of polypoid growth of nostril; he also demonstrated the latest pattern of Dare's hæmoglobinometer.

Mr. D. A. **Crow** read a paper on the

Comparative Anatomy of the Nose as a Guide to its Medical and Surgical Treatment.

The development of the olfactory and respiratory portions, he said, was traced throughout the various groups of animals, commencing with fishes, whose nose is exclusively olfactory, reference then being made to the dipnoi, where for the first time the respiratory function is combined with the olfactory. In the reptilian type the two functions are still associated, the olfactory remaining in the upper compartment of the nose, and the respiratory being more definitely associated with the lower. In birds, whose olfactory sense is not unusually highly developed, the same general arrangement persists. Note was then made of the deficient olfactory sense in such species as the duck bill platypus and the cetacea, contrasting this with the very high olfactory development in creatures of nocturnal habit such as echidna, dog, and cat. The organ of Jacobson was demonstrated in the sheep, and the theory of its association with herd sense discussed. The various modifications of the respiratory part of the nose, as distinct from the olfactory, were then illustrated by diagrams of the nose of the kangaroo and walrus. The morphology of the human nose was then dealt with, and attention having been drawn to the very limited area devoted to olfaction the respiratory area was defined, emphasis being laid on the intermediate area, including the accessory sinuses, which is an area of indeterminate function, and like all residual organs, becomes vulnerable to disease, especially when an *acquired* non-functioning due to nasal obstruction is superadded to the non-functioning of congenital origin. The pathology of catarrh was briefly dealt with, and a diagram presented to indicate the sequence of pathological events which resolve themselves not into a vicious circle merely, but into a "vicious figure of 8." Emphasis was laid on the futility of operating on the nose, except as a palliative measure, after destruction of ciliated epithelium, if the expectation is to cure the patient's catarrh; for ciliated epithelium is never regenerated, and on it depends the whole question of sanitation of the nose. But whilst a protest was entered against too frequent and too extensive nasal operations in the later stage, an appeal was made for more readily removing the causes of catarrh during the first half-turn of the vicious "figure of 8," whether the cause were adenoids, septal deflection, constipation, or that main cause of catarrh, a fear of climate.

The paper concluded with reference to reflex nasal effects and a brief note on olfaction; it was discussed and criticised by the **President**, Mr. A. J. **Hutchison**, Drs. C. H. **Bryant**, L. A. **Parry**, and **Donald Hall**.

Mr. **Crow** also showed the nose of a sheep dissected. The septum had been half cut away and the remainder reflected, showing the organ of Jacobson partially dissected out. On the lateral wall was seen the large (respiratory) maxillo-turbinal (also shown in cross section) and the numerous (olfactory) ethmo-turbinals, also the naso-turbinal. A small piece of maxillary sinus mucous membrane was exposed.

Fourth Northern General Hospital, Lincoln. The fourth annual dinner of the staff was held at the White Hart Hotel, Lincoln, on Dec. 13th. There were present Lieut.-Colonel Lambert, Majors Tinley, Shipman, Watkins, Rainforth, Lowe, Captains Willoughby Smith, Alcock, Pratt, Barlow, Captain and Quartermaster Dickinson, and the Rev. C. E. Bolam, C.F. A discussion took place on the future organisation of the dinner, and in view of the small attendance this year it was decided to widen the scope of the function and to include as members all medical officers who served in the late war in the Navy, Army, and Air Force who live in Lincoln and the vicinity; together with the quartermasters and chaplains who served at the Fourth Northern General Hospital. It was decided to hold the dinner annually in the spring, and that the next dinner be held in April, 1925, when Colonel A. M. Connell, A.M.S., will preside.

Reviews and Notices of Books.

TREATMENT OF FRACTURES IN GENERAL PRACTICE.

By C. MAX PAGE, D.S.O., M.S. Lond., F.R.C.S., Senior Surgeon to Out-patients, St. Thomas's Hospital; and W. ROWLEY BRISTOW, M.B., B.S. Lond., F.R.C.S., Surgeon to the Orthopædic Department, St. Thomas's Hospital. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. With 142 figures in the text. Pp. xi.+239. 12*s.* 6*d.*

THE treatment of fractures until the late war had fallen into rather a low estate, out of which the brilliant operative treatment of Sir Arbuthnot Lane failed completely to rescue it. For the method of operation and plating was obviously inapplicable to the needs of general industrial practice, seeing that it could only be successful in a well-equipped hospital. Yet as the late Mr. Clinton Dent showed, the amount of temporary or permanent disability after such a comparatively minor injury as a Pott's fracture of the fibula is very great and has a far worse effect on a workman's earnings than many diseases, which are cured by difficult and delicate operations. For these reasons we welcome this book. In it the simplest efficient methods of treating all the fractures that are likely to be met with in general practice are described, not forgetting first-aid devices. The reader is not bewildered by being offered the choice of several methods, but generally he is told what proceeding has given the authors most satisfactory results, and he is shown how to carry it out. The diagrams, X ray pictures, and other illustrations are clear and satisfactorily illustrate the text. A very important question which is too often ignored in larger works on fractures is dealt with in this handbook. That is, how is the Scylla of the danger of permanent stiffness or atrophy from too long fixation of joints and muscles to be avoided, without falling into the fatal Charybdis of recurrent deformity or faulty or deficient union? We think that the advice given on these matters is sound. The difficult region of the elbow-joint receives special attention, and the way to avoid the awful disaster of ischæmic paralysis of the hand is plainly pointed out.

The experience gained by one of these writers in the Balkan war, and by both at the Special Hospital at Shepherd's Bush, has fully qualified them to write with authority on the subject. It is to be hoped that in the future it will occupy a much more important position in the training of students than it has done for some years past in metropolitan schools of medicine. Many a young country practitioner's reputation may be made or marred by his manner of handling a case of fractured femur in a locally important patient. Woe betide him if he does not employ X rays in its diagnosis and treatment! In default of the proper training, or in addition to it, the study of this book will not only prevent his making technical blunders and being cast in damages by a not too intelligent jury, but will ensure that his patients get the treatment best suited to their needs and circumstances.

L'HÉMATOBLASTE, TROISIÈME ELÉMENT DU SANG.

Par GEORGES HAYEM, avec avant-propos et annotations par le Dr. L. RIVET, Médecin des Hôpitaux. Paris: Les Presses Universitaires de France. 1923. Pp. 254. Fr.25.

THERE has always been an unfortunate tendency among students of the formed elements of the blood to confer upon them names indicative of their supposed place in the hæmatological genealogical tree before that place had been properly determined. "Hématoblaste" is one of these terms, coined by Prof. Hayem and by him applied to that element of the blood known in this country as the "platelet," with the purpose of indicating the originator's view that these bodies represent incompletely developed red cells. It must always stand to Prof. Hayem's credit that, while physiologists and pathologists in this and other countries were denying their existence, he was actively engaged in the study of the platelets; at the same time it must be admitted that his evidence as to their alleged relationship to the red cells, on the strength of which he has bestowed upon them the Greek polysyllable, is of the scantiest: it mainly depends on the observation, first made by himself, that in states of regeneration after blood loss or destruction the rise of the red-cell count is preceded by an initial increase in the platelets in the circulating blood. Interesting as it is, all that this observation really indicates is a probability that both platelets and red cells derive from a common tissue system. The most interesting portions of the book are devoted to the comparative anatomy of the platelets, a field into which Prof. Hayem was among the first to enter and which is still largely unexplored.

Dr. L. Rivet provides an introduction in which he gives histories of the growth of knowledge on the subject of the platelets, and also of Prof. Hayem, both of considerable interest. He has also edited a series of annotations, constituting Part II. of the book, in which, in the section on the therapeusis of the platelets, he accomplishes a notable feat in describing the procedure of blood transfusion without making any reference to the blood groups. English readers should note that when "anémie pernicieuse" is spoken of that condition of the blood known in this country as "aplastic" anæmia is apparently indicated.

There is still an opening for an up-to-date book on the blood platelets.

THE INFANT AND YOUNG CHILD.

By JOHN LOVETT MORSE, A.M., M.D.; EDWIN T. WYMAN, M.D.; and LEWIS WEBB HILL, M.D. London and Philadelphia: W. B. Saunders Company. 1923. Pp. 271. 8*s.* 6*d.*

IN this book, which is addressed to mothers, the writers have set themselves the task of anticipating and answering the questions which mothers are in the habit of asking about the many details of infant care. There are five main sections in the book, dealing respectively with antenatal preparations, feeding, growth and development, care and training, and lastly, diseases, emergencies, and medicines. The final section is designedly short and somewhat sketchy, as it is not intended in any way to take the place of a physician when the child is ill. The range of topics discussed is wide, since the book deals with the treatment of children up to the age of 6 years, but the authors have observed throughout an excellent perspective, stress being laid rather on the principles of treatment than on more or less trivial details. We do not, however, find ourselves altogether in agreement with them with regard to some of their teaching. The list of contra-indications to suckling is over-long, and includes a warning that really delicate and feeble women should not nurse their babies "because, as a rule, the milk is poor, and the strain of nursing is too much for them." It is also considered inadvisable for women who have some chronic disease—other than syphilis—to suckle their babies; while even clinically inactive pulmonary tuberculosis is a contra-indication unless the mother has been cured for a long time and is comparatively well. We fancy that most of the pædiatrists in this country would qualify all these statements. The section on artificial feeding is good, but it is unfortunate that no mention is made of the principle of taking the weight of a baby rather than—or at any rate together with—its age as a guide in regulating the amount of food needed. In the chapter on mixed feeding it is said that where the supply of breast-milk is almost sufficient, the baby may be given the artificial food at one or two feedings in place of the breast—advice which we look upon as entirely wrong in principle. In the main, however, the teaching given is sound and helpful, and the book should be useful to the section of the public to whom it is addressed.

How our Bodies are Made.

By R. M. Wilson, M.B., Ch.B. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 246. 5*s.*

Conversations on the meaning of symptoms or the reasons for disorders between patients and doctors often end in confusion—each party feeling embarrassed or contemptuous in the attempt to make himself understood in a foreign tongue. This is largely because the doctor thinks in technical terms which are unintelligible even when translated, since the foundations of the lay conception of the structure and functions of the human body have been neither well nor truly laid. There is no common basis on which to build, and those who attempt to find one are apt to be discouraged by the preliminary amount of spade-work required. Often it is not until the clamour of questions arises from a younger generation, questions which can neither be hushed nor answered, that adults become aware how limited is their knowledge of vital processes. If is for these reasons that this little book, which is intended for very young people, will be read greedily and then be studied seriously, not only by children but by parents, to their mutual benefit. Not only has it a wealth of breezy martial imagery which cannot fail to stimulate the desire for more knowledge and for active endeavour towards a sane mind in a fit body, but its valuable negative qualities, absence of patronage and sentimentality, deserve praise. It would be difficult to give an adequate idea of the ingenuity of the analogies suggested and in many cases pictured. The chapter headings are admirably chosen. They include The Hardest Worker in the World, The Soldiers at the Gate, How People are Born, The Red Submarines and the White, When You Cut Your Finger, The Hole in the Wall, Hitting and Hitting Back—to quote only a few. Throughout the book aeroplanes, ships, engines, telephones, and scouts act as prototypes, but never is an analogy strained to explain the facts nor the facts distorted to complete an analogy. The illustrations, with the sole exception of the distorted figure on p. 145, are most suggestive. For example, a diagram of the action of a trap-door makes that of the heart's valves obvious to anyone. The movements of blood corpuscles are much more entrancing when pictured as the activities of red submarines, taking a cargo of fresh air to the lung and removing a cargo of used air, and it becomes of great interest to learn where these submarines are built and where broken up after a short but busy life. It is a happy coincidence that this book should have been published at the same Christmas season as Kipling's appeal to Scouts and Guides: "Be fit—be fit! In mind and body be fit!" Kipling has pointed out the ideal, and Dr. Wilson shows boys and girls and parents how to achieve it.

Applied Pathology in Diseases of the Nose, Throat, and Ear.

By Joseph C. Beck, M.D., F.A.C.S., Chief of Staff, Otolaryngology, North Chicago Hospital. London: Henry Kimpton. 1923. Pp. 280. 37*s.* 6*d.*

Dr. Joseph Beck says, in his preface to this book, that he has long felt the need for a text-book limited to the pathology of nose, throat, and ear diseases; he further states that he has decided to make this work one on applied pathology, and that it was his desire to limit it almost exclusively to his own personal experiences. The effect of the first design is that the clinical aspect of the various affections, and the discussion of their treatment, form by far the larger part of the book, and that the pathology has been relegated to a very secondary place. From the second part of the author's plan it results that the pathological descriptions are extremely incomplete, and that many interesting conditions are completely omitted. Thus, although a place is given to diseases of the œsophagus, the very interesting condition of dilatation without stricture escapes all mention; the pathology, also, of the commoner affections, such as cancer of the larynx, is very inadequately described, and sarcoma of this region is not mentioned at all. Syphilitic labyrinthitis receives a scanty mention from its clinical aspect, but no allusion to its pathology, and even the pathology of nasal polypus is but briefly described. In fact, the book is not a systematic work on pathology, but resolves itself into a sketchy general description of some of the diseases of the nose, throat, and ear. It is very well printed, and some of the illustrations, which are numerous, are excellent.

Digitalis Therapy.

Die Digitalis und ihre therapeutische Anwendung. Authorised German translation (by Prof. Dr. P. Neukirch) of a Monograph written by various Dutch authors. Berlin: Julius Springer. 1923. Pp. 119. $1.35.

The compliment we pay to this publication is a high one: that we hope it will be translated into English, for it should be read widely. It is a well-balanced critical review of a subject which has become difficult to understand, partly owing to chemical intricacy, partly owing to a plethora of writing, but still more largely by an incoördination of terminology, itself based on international jealousy and business competition. In 1920 the Dutch Government founded an imperial institute for pharmacological and therapeutical research to inquire into suitable drugs and secret remedies. Oil of chenopodium, salvarsan, and quinine and quinidine have been reviewed in the way that digitalis is now treated. William Withering receives full credit for his pioneer work; his writings are quoted at some length, always with approval. The writers consider his remarks so concise and definite that no summary of them is necessary, and compare his monograph with the later writings about digitalis. Modern literature on the subject would fill volumes, but would contain little of practical value that is not laid down in the few pages of Withering's account. After this acknowledgment digitalis is considered from all sides—chemical, pharmaceutical, pharmacological and therapeutical—and strophanthus is included in the review. To trace the history and to assign a worth to the numerous preparations and supposed constituents of a drug like digitalis is a big task, but it is a task here well done; the subject is treated in a manner that is full yet concise, and the text is comprehensive though eminently readable. The publication is a model of what a monograph should be, and is a credit to the Rijks-Instituut.

Medical Climatology of England and Wales.

By Edgar Hawkins, M.A. Oxf., M.D. Edin. London: H. K. Lewis and Co., Ltd. 1923. With 149 Charts (144 in colours). Pp. xiv. + 302. 25*s.*

Medical practitioners will find this creditable and handy volume of much service when dealing with medical climatic problems. The information has been culled from the standard volumes on meteorology and geology, as well as from works on spas, health resorts, pleasure resorts, and travel, and the author has rendered the subject-matter easily serviceable by free use of excellent coloured charts. The various meteorological factors for each district or place are expressed in percentages either above or below the normals for the whole of England and Wales. In this way we may compare for different places the annual mean values of temperature, sunshine, rainfall, daily range of temperature, cloud, relative humidity, relative frequency of the three most prevalent winds, the average number of days of snow, hail, thunderstorm, fog, gale, and rain. Although details of many places are given, cost of printing has been responsible for omissions. While the work fulfils the functions of a general guide, a practitioner should have some personal acquaintance with a place before expecting to obtain any aid from climate. No claim can be made that climate alone will cure disease. Nevertheless, climate may make life much easier and may also act as an efficient assistant to nature and to drugs in very many conditions of ill-health. On the other hand, an unsuitable place may do much to retard recovery. Attention may well be given to the effects of the place on the patient's mind, and social conditions cannot be left out of consideration.

Climates are divided into two main classes, bracing and sedative; these terms to be construed as relative to the place in which a patient is residing. Brighton may be expected to be sedative to an inhabitant of Margate. Thus a place within a few miles may afford the desired change. The author is to be congratulated on producing a small volume, suitable for ready reference and containing details taken from many well-known fields; nevertheless, many facts in the book will be recognised as old friends. What one misses is the freshness of new facts—that is, some reference to the researches of the past 15 or 20 years in England itself; full attention should have been given at least to the work of Dr. Leonard Hill, F.R.S., on the scientific side, and of Sir Henry Gauvain on the clinical side. If we are to advance, new facts must be emphasised even in our small text-books.

The book is well arranged, and, for the practitioner, is probably the best of its kind now available. One or two maps might with advantage be included in a future edition.

THE OLD DOCTOR.

By FRANK G. LAYTON, M.R.C.S., L.R.C.P. Birmingham: Cornish Brothers, Ltd. 1923. Pp. 170. 4*s.* 6*d.*

Dr. Layton has already published a number of plays and books. "The Old Doctor" is a study of medical life in a Midland town before the days of the National Insurance Act. It is written by a man of insight and feeling, keenly alive to the hardships of the general practitioner's life in the back streets of an industrial town, where calls were many but fees often remained unpaid. These were the times of the penny clubs, when the sixpenny doctor—advice and a bottle—flourished; ten years is a long time in the recent history of medicine, and most of the "old doctor's" idealistic schemes have since been realised. The author has a Dickensian touch; his characters are rather types than human beings—the young medical man fresh from the university, the bluff, kind-hearted old practitioner, the unscrupulous cash-down "consultant," the High Church parson, and the Labour leader—and certain inevitably sordid pictures are relieved by the grace of humour.

JOURNALS.

QUARTERLY JOURNAL OF EXPERIMENTAL PHYSIOLOGY. Vol. XIII. Nos. 3 and 4. Pp. 199–404. London: Charles Griffin and Co., Ltd. November, 1923. 20*s.*—The General Effects of Exposure to Radium on Metabolism and Tumour Growth in the Rat and the Special Effects on Testis and Pituitary, by J. C. Mottram and W. Cramer. This is a contribution to the study of the effects of small doses of radium. When small doses are applied over long periods to young rats these animals put on weight more rapidly than the controls and become very obese. The pituitary body shows changes in all three parts of the gland, and on the testis the primary effect is the atrophy of the seminiferous tubules, the resulting shrinkage of these tubules allowing the interstitial cells to hypertrophy. Comparison with the effects of castration shows that the elimination of the functional activity of the seminal epithelium does not lead to obesity. It only produces certain definite changes in the anterior part of the pituitary body. The obesity is, in this condition, at any rate, the direct or indirect result of the hypertrophy of the interstitial cells, which also produces changes in the intermediate and posterior portions of the pituitary. The observations show that the two component tissues of the testis, the spermatogenic tissue and the interstitial tissue, have two distinct and independent effects on the organism, and of these two effects that of the interstitial cells is the more profound. Even in the absence of the spermatogenic tissue the interstitial cells furnish an internal secretion which produces definite changes in the intermediate and nervous portions of the pituitary, changes which, through the action of this gland and possibly also through the action of some other endocrine organs, affect the metabolism. These effects on endocrine organs and metabolism represent probably the actual basis of the general changes stated by Steinach to occur after implantation of trabecular tissue, and when induced in a senile organism, described vaguely as rejuvenescence. Resection of the vasa deferentia produces no very obvious changes in either testis or pituitary, and does not produce obesity. Rats which have been rendered obese by exposure to radium are more resistant to the growth of transplantable tumours. —Functions of the Pituitary and Thyroid Glands, by Norman M. Dott. This research includes the technique of experimental surgery of these glands and a summary of the author's results. Important both to the experimental physiologist and to the surgeon whose work lies in the domain of cerebral surgery is the very full and copiously illustrated exposition of the technique for experimental operations, more especially on the pituitary gland. The experiments were made on dogs and cats. The experimental pituitary derangements are considered and discussed, and the opinions founded thereon are to be regarded as provisional. The general conclusion arrived at is that the anterior lobe exerts a powerful influence on the cell activities of the body tissues generally and that it exerts a specific and vital influence on tissues of an embryonic type, as represented by the epiphyseal cartilages—X ray photographs are given—and germinal epithelium. The pars nervosa is of less physiological significance, for its complete extirpation causes no physiological disturbance. A lesion of the thyroid, being a simple homogeneous gland, is more easy of interpretation. Total extirpation of the thyroid is compatible with indefinite survival. Complete removal—athyroidism—was followed by subnormal temperature, adiposity, and lethargy—signs which were interpreted as due to depression of the metabolic rate. A single injection of thyroid extract caused a rise of temperature, beginning after 2–8 hours and lasting for 20 hours. Injection of the anterior lobe pituitary extract in the thyroidless animal caused similar results as regards temperature and liveliness. Histological examination showed that there was no degeneration in the epiphyseal cartilages as in pituitary deficiency, the bone and cartilage merely remaining in infantile condition. Thyroid injection restores epiphyseal growth to normal as determined by accurate X ray measurements. In hyperthyroidism the generative organs share the general acceleration of maturation without deviation from the normal beyond their more rapid development. Practically no changes were observed in the other endocrine glands, apart from those in the pituitary body, and, notably, the parathyroids were quite normal after thyroidectomy. Thyroid feeding produced no obvious changes in the thyroid. Athyroidism in young animals was characterised by a state of persistent infantilism. In contrast to the thyroid, which appears to influence the rate of tissue processes only, the pituitary body exerts, in addition, a special influence on the vitality of the embryonic types of tissue.—R. K. S. Lim, Alister R. Matheson, and W. Schlapp contribute papers on "An Improved Method for Investigating the Secretory Function of the Stomach and Duodenum in the Human Subject" and "Observations on the Human Gastro-Duodenal Secretions, with Special Reference to the Action of Histamine." Lim and Schlapp collaborate in a paper "On the Effect of Histamine, Gastrin, and Secretin on the Gastro-duodenal Secretions in Animals." The "improved method" is described and its technique figured and explained; it consists essentially in applying continuous suction to these organs simultaneously by two separate tubes.—The other papers on Syneresis, or Contraction of Blood Clots, by J. W. Pickering and J. A. Hewitt; Effect of Adrenaline on Left Auricular

Pressure, by R. J. S. McDowall; Inhibition of Hæmolysis and Absorption of Adrenaline by Kaolin, by Eric Ponder; Reflex Times in the South African Clawed Frog, by W. A. Jolly; and the Influence of Hypophysectomy on the Rate of Carbon Dioxide Production in Frogs, by Frank R. Winton and Lancelot T. Hogben.

THE INDIAN JOURNAL OF MEDICAL RESEARCH for October contains 33 articles, some of which are of considerable interest. In some instances there are several contributions by the same author, or group of authors.—R. McCarrison has one of his familiar articles on the pathogenesis of deficiency disease.—J. F. Caius and K. S. Mhaskar contribute a series of five articles on the composition of anthelmintics and their relative therapeutic values. These papers throw light on the complex chemical compositions of many drugs which have been tested.—U. N. Brahmachari has a series of three articles on the chemotherapy of antimony compounds in kala-azar, while H. E. Shortt and R. T. Sen contribute a short article on the action of urea stibamine in this disease, a substance which they found more effective than antimony tartrate.—A. C. Vardon has produced desiccated nutrient media for use in small laboratories; W. F. Harvey and K. R. K. Iyengar continue their work on bacterial vaccines. F. W. Cragg has studied the bionomics of the bed bug, and P. J. Barraud contributes two more parts upon the revision of the culicine mosquitoes in India, and describes two new species from Assam.—C. A. Gill has two papers on malaria.—E. Muir has an illuminating article on the treatment of leprosy considered in the light of the nature of its spread throughout the body.—There is another record of the recovery of *Herpetomonas donovani* from the urine in a case of kala-azar, by H. E. Shortt, C. S. Swaminath, and R. T. Sen.

Reports and Analytical Records.

ALUNOZAL.

(DICK, COATES AND CO., 41, GREAT TOWER-STREET, LONDON, E.C. 3.)

IN addition to urazine, a product of the Laboratoire des Produits "Usines du Rhône," to which we called attention in our issue of Nov. 17th, we have received a sample of alunozal, a basic salicylate of aluminium which has been used with some success as an intestinal antiseptic in France, particularly in cases of infantile and tuberculous diarrhœa and in enteritis. The preparation is supplied in compressed tablets and in granular effervescent form containing 25 per cent. of the substance, and it is claimed to be non-irritating. Taken in a little water it is tasteless, and the dose of the granular form is ½ to 1 spoonful for an infant, 1 to 4 spoonfuls for a child of older years, and 3 to 6 spoonfuls for an adult. The preparation should not be taken in connexion with alkaline substances such as bicarbonate of soda, Vichy water, and so forth.

"SOLOID" ALUMINIUM SULPHIDE.

(BURROUGHS, WELLCOME AND CO., SNOW HILL-BUILDINGS, LONDON, E.C. 1.)

The preparation of small quantities of sulphuretted hydrogen for use in water analysis is cumbersome by the ordinary methods. Messrs. Burroughs, Wellcome and Co. have produced a "soloid" aluminium sulphide (0·1 g.) by which an H_2S solution may be quickly prepared by placing in 10 c.cm. of water one "soloid" and allowing it to remain for two or three minutes. By this means the water becomes saturated with H_2S, and a small quantity of sulphuretted solution for water analysis or any other purpose can be conveniently and quickly prepared. "Soloid" aluminium sulphide is sold in packages of 25, each "soloid" containing 0·1 g.

BISMUTHYL, BI-QUINYL, AND INJECTABLE URENILE.

(PRODUITS CHIMIQUES ET PHARMACEUTIQUES "MEURICE," 68, RUE BERKENDAEL, BRUSSELS. LONDON AGENTS: MESSRS. L. H. GORRIS, 49, QUEEN VICTORIA-STREET, LONDON, E.C. 4.)

The use of bismuth compounds for the treatment of syphilis by intramuscular injections has stimulated the Produits Chimiques et Pharmaceutiques, "Meurice" to place upon the market two preparations, bismuthyl, precipitated bismuth (97 per cent. of pure metal), and bi-quinyl, double iodide of quinine and bismuth (5 per cent. of bismuth), for which satisfactory results are claimed by French and Belgian doctors. Both the rapid disappearance of spirochætes as well as complete cicatrisation of any lesions present have followed the use of bismuthyl, the dosage of which is 2 c.cm. aqueous suspension (containing 0·2 of bismuth) for intramuscular injection. This does not give pain and is free from toxic sequels. One dose, which is contained in one ampoule, is administered every five days until 2·5–3 g. of bismuth have been injected—that is to say, 12 to 15 ampoules. The treatment is given three times at monthly intervals, but is stopped after the third treatment if the Bordet-Wassermann reaction remains negative.

Bi-quinyl is a double iodide of quinine and bismuth, the metal being in the relation of 50 per cent. It has been found useful when administered between courses of arsenobenzol, and, like bismuthyl, its administration has been shown to be painless. Patients who are resistant to the action of arsenobenzol have obtained benefit from intramuscular injections. The injection dose for adults is 0·3 g. of the salt, the equivalent of each ampoule, which contains 3 c.cm. of active salt in sterile oil solution. The injection is made every three days until 15 or 20 injections have been given and the course is repeated after a rest of ten days. A smaller dose can be administered to children. Bismuthyl and bi-quinyl are both put up in boxes containing 12 ampoules.

Another preparation of this firm is injectable urenile, introduced in 1921, which is a chemically pure solution of hexamethylene-tetramine. The action depends upon the liberation of formaldehyde by the decomposition of hexamine. In septicæmic infections favourable results have been reported, and even apparently hopeless cases of encephalitis lethargica have responded to its use. In diabetic acidosis an injection of 2, 4, or 6 g. has been found valuable. Administration is by intramuscular injection into the buttock, which with proper technique does not cause pain. Intravenous injections are recommended when four or more grammes of solution are to be injected. The initial dose, as a rule, is 1 g. (0·5 g. for a child) followed by 2 g., 4 g., or more as required. The preparation is packed in boxes of 12 ampoules, each containing either 1 or 2 g.

SALICIN.

(THE ST. AMAND MANUFACTURING CO., LTD., CARNWATH-ROAD, FULHAM, S.W. 6.)

The use in rheumatism of salicin was referred to in the columns of THE LANCET by Dr. T. Maclagan as early as 1876, and since that time it has been increasingly used not only in rheumatism, but in the treatment of certain skin affections and in aborting influenza. Salicin is a glucoside of salicylic alcohol, obtained from the bark of certain species of willow and poplar. It is a British Pharmacopœial preparation, and a little book which is issued by the St. Amand Manufacturing Company to medical men summarises succinctly the stages of its application to various affections, drawing special attention to the use of salicin in influenza. A sample of the drug which we have received is made up in compressed tablets of 5 gr. each, and as they will be sent free to any medical man who applies for them an opportunity is given for testing a drug that has given gratifying results.

THE LANCET.

LONDON: SATURDAY, DECEMBER 22, 1923.

CANCER RESEARCH.

THE scientific reports of the Imperial Cancer Research Fund are issued, not annually, but at irregular intervals, and so, though the Fund has been in existence for 21 years, only seven reports have preceded the one just published. The wisdom of this policy of restraint is apparent to anyone whose acquaintance with medical science is anything but the most superficial. Though the story of cancer research in this country is one of endeavour and achievement, it contains in addition many dark chapters of frustated hopes, and the lot of the workers in this field would be hard indeed were they required to publish according to a time-table. As it is, the custom of the Fund has been to issue from time to time in collected form such papers as appear to be of more than passing interest. These reports represent, as it were, chapters in the history of the Fund; they contain material which is published without haste, and they are recognised by serious students as permanent contributions to our knowledge of the subject. Moreover, while the lay press is only too eager to cater for the appetite of a sensation-loving public, the value to medical science as a whole of an organisation which steadfastly refuses to pretend that the secrets of biology are at the service of the long purse and the strident voice is incalculable.

The present report is made up of ten papers, some of which have already appeared in various journals, while others are now published for the first time. Dr. J. A. MURRAY, the director, divides them into two groups, according to whether they deal with the behaviour and character of the cell already cancerous, or with the changes the cells undergo in becoming cancerous; and we do not suppose that anyone will be found to quarrel with this grouping. But looked at from another point of view, the report is evidence of the extraordinarily wide field embraced by the work of the Fund, for the separate papers might as justly be grouped under the headings, Physiology, Biochemistry, Experimental Biology, Descriptive Pathology, and Experimental Pathology; while the clinical side is represented by the inclusion of Dr. A. SCOTT's monograph on Paraffin Dermatoses and Cancer in the Operatives of the Scottish Shale Oil Industry, one of the most valuable contributions to the clinical study of malignant disease with which we are acquainted, and now published in full for the first time. A more or less detailed abstract of some of the papers in the report appears in another part of this issue, but certain generalisations which emerge from its study may usefully be considered here. From time to time during the last few years we have suggested that the cancer problem has entered upon a new phase, and the volume under review goes far to bear out our contention. Indeed, to the onlooker the situation is pregnant with possibilities. Intensive study has defined the nature of the malignant cell as it has never been defined before. The various disguises are being stripped from it one by one and its true features are beginning to be revealed. Like most other villains, it is not wholly bad. In many respects, as laborious observations and experiments have shown, it might pass unnoticed in a crowd of normal worthy citizens; yet we know very well that deep down its nature is essentially antisocial. At least one property peculiar to the malignant cell has been demonstrated beyond cavil by the recent work: it is the power to elaborate for itself growth-activating substances which are only produced in normal tissues by cell destruction. It has long been held that the stimulus to growth which causes the proliferation of the healthy cells at the periphery of any lesion, as part of the mechanism of repair, comes from the dead tissues, but the proof that this is really so was very clearly brought out by the method of tissue culture. Whereas embryonic and malignant tissues proliferate immediately if placed in a suitable culture-medium outside the body, adult tissues in similar circumstances exhibit a prolonged latent period of ten days or more before growth begins. This latent period may be abolished by the addition to the culture-medium of a saline extract of normal adult tissue which has been disintegrated and incubated at body temperature. In the destruction of normal tissue, therefore, an activating substance is produced which stimulates the proliferative powers of normal cells. Malignant cells yield a similar activating substance if extracted at 0° C.—that is, without any autolysis at all. This clear difference, then, is established between normal and malignant cells; the malignant cell produces autonomously activating substances which are only formed by the degradation of the protoplasm of the normal cell. The exact chemical nature of the activating substance is as yet unknown, but it seems scarcely likely that it will remain so for long, and with the detection of definite biochemical differences between the innocent and the malignant cell may come the opportunity of the experimental pharmacologist.

In another aspect of the cancer problem, that which deals with the actual production of malignant growths, much progress has also been made. Various forms of chronic irritation have long been associated with tumour formation, both on clinical and experimental grounds, and one of these, the repeated application of tar to the skin, has yielded results of the utmost value. With this method, superficial cancers which lend themselves well to observation can be produced with considerable uniformity in that convenient creature the mouse, as well as in other animals. Several significant observations have emerged from these experiments. In the first place, the time elapsing between the beginning of the tarring and the development of the tumour varies enormously in different animals, three and eighteen months being the minimum and maximum latent periods recorded. Further, cessation of the process of tarring after the applications have been continued for some two or three months does not prevent the malignant change. It would seem that while exposure over a certain period of time to some irritant is necessary to initiate the change, the actual development of malignant characters in a recognisable form is a slow and gradual process. The observations of DEELMAN, quoted in the report, are important as indicating the nature of the malignant change. This author has found that scarification of the skin of the mouse immediately before the tarring is started cuts down the latent period to something like a quarter of the time. In conjunction with the results of tissue culture, this observation strongly suggests that the trauma and the reparative changes following it, put the cells in a susceptible condition, so that they react more rapidly to the action of the tar. And all these experiments tend to show that the cell in becoming malignant actually acquires new properties; that malignant disease is not due to any inhibition, loss of physiological control, or alteration in tissue tension.

So far the experimental production of cancer has not rendered the situation more hopeful, but rather the reverse, for the assumption is that the cancer of middle life is due to factors potent many years before. But it may yet prove that salvation will be found in this latent period, as it is in hydrophobia, and further investigations suggest possibilities of far-reaching importance. In mice in whom tar cancers have been produced and extirpated by operation, the further application of tar to a different area of the body fails to produce anything more than atrophy of the skin; and similar negative results were obtained in 13 out of 14 animals from which spontaneous mammary carcinomata had been removed by operation. These experiments are admittedly few in number, but they are supported by others planned on slightly different lines, and they fit in with the rarity of double carcinomata in the human subject. While it is obvious that much more work must be undertaken in this direction before it will be possible to speak with certainty, the inference that a profound constitutional change is brought about in the individual by the development and growth of a malignant tumour is very strong, for only thus can this refractory state be explained. Granted the existence of this constitutional change, its recognition and even its control should not be beyond the bounds of possibility. Could it be demonstrated, it might prove of extreme value in diagnosis, while by its artificial production it might even be possible to inhibit the development of tumours.

Even from this brief summary of the report the scope and importance of the work being carried on by the Imperial Cancer Research Fund must be apparent. The close association between the various organisations engaged in cancer research in this country and abroad, combined with the modern facilities for the rapid interchange of experiences and ideas, have focused attention on this subject with an intensity never before approached. Progress since the war has been remarkable, and we are fully justified in hoping for much in the near future. A word of warning, however, is not amiss. We should be rash indeed were we to encourage the public to believe that the cure of cancer will follow immediately upon the attainment of a more complete knowledge of the cause of cancer, for there is no absolute justification for this belief. The tubercle bacillus was discovered some 40 years ago, yet tuberculosis is still rampant. It is one thing to recognise a whirlwind, it is quite another thing to direct a storm; and the medical profession will best retain the confidence of the public by remembering that there is safety in caution.

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A GREAT SEER.

Dr. Fournier D'Albe is to be congratulated upon having written a very charming as well as interesting biography[1] of one of the foremost scientific men of the day. Sir William Crookes's personality was a difficult one about which to write, but Dr. D'Albe has managed to be strictly impartial, thus avoiding the pitfall into which a certain legal luminary on the Bench is said to have fallen, when he concluded his charge to the jury by saying: "Gentlemen, you will give your verdict according to your consciences and the evidence which has been laid before you, avoiding partiality on the one hand and impartiality on the other." To take first the debatable side of Crookes's career—namely, his investigations and opinions upon what is called spiritualism—Dr. D'Albe gives an account of Crookes's position from the spiritualist point of view and from the rationalist point of view, and sets out the arguments pro and con with great fairness in Chapter XII. His conclusion is, "spiritualism as a religion may legitimately be studied in a section of anthropology, but spiritualism as a science does not exist."

It is both more pleasant and profitable to follow those portions of Crookes's long career which show him as the earnest and capable student of chemistry, as the founder of the *Chemical News*, as the worker in spectroscopy and the discoverer of thallium, as the inventor of the radiometer and the discoverer of cathode rays. One very remarkable feature of Crookes's researches was the scientific intuition which came to him from time to time when the balance of his intellect trembled on the verge of a great discovery without, however, quite coming down on the right side. Thus, on p. 26 his biographer quotes an entry from an old note-book under date April, 1854, upon an examination of the spectrum produced by coloured flames which shows that he was within an ace of discovering the law established by Bunsen and Kirchoff in 1859, that when light from a solid or a liquid passes through a gas of lower temperature the gas absorbs those particular rays of light of which its own spectrum consists. At the time of his spectroscopic research Crookes was in his twenty-second year. It is fair to state that Stokes in 1850 had suggested that the double dark line Frauenhofer D was due to the absorptive action of sodium vapour in the sun's atmosphere. Again, at p. 340, we are given excerpts from an article in the *Fortnightly Review* of February, 1892, based on observation of a few developments of the Hertzian demonstration of electric waves in space, which is a wonderful forecast of wireless telegraphy. Sometimes, however, Crookes underrated the possibilities of newly born inventions, as, for instance, when in 1878 we find him writing to Prof. (now Sir) William Barrett, "I don't think there is field yet for the telephone to be used commercially. I don't think Bell's company is doing much." His demonstration of electric discharges in high vacua at a meeting of the British Association at Sheffield in 1879 was the first time in which the phrase "cathode rays" was used. A little earlier than this date he had regarded the stream of cathode rays as corpuscular light. Now, however, he called them "matter in a fourth state"—i.e., he claimed, and rightly so as we now know, that he had obtained matter in a state not solid, liquid, nor gaseous, but split up into the apparently ultimate elements which we now call electrons.

Crookes was a striking example of the British scientific man who rises to great heights by the sheer force of genius, with little or no education in the vulgar sense of the word. He was born in 1832 the son of a tailor in Regent-street. His first school was at Weybridge, where he seems to have been like any other boy, though from his earliest years he was fond of chemistry and was always trying experiments. His early sound training in chemistry he obtained under that admirable teacher Hoffmann at the Royal College of Chemistry in South Kensington, and within a year of his entry in 1848, his sixteenth year, he obtained the Ashburton scholarship, while at the end of the following year Hoffmann appointed him junior, and in 1851 senior assistant. The story of his struggles and trials, of his never-ceasing work, of his discoveries and successes must be sought for in Dr. D'Albe's pages. Besides chemistry he worked in many side lines of scientific matters, such as photography, the separation of gold, explosives, and the cattle plague, for which disease he advocated the use of carbolic acid as a disinfectant and decided (this was in 1866) that the disease must be due to "germinal matter, or living cells, possessing physiological individuality." Perhaps the occasion on which Crookes came most prominently before the public was in 1898, when as President of the British Association he delivered a remarkable address upon the wheat problem, the value and importance of nitrogen, and the discovery by William Ramsay of new gases. It is worth while quoting his striking peroration :—

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[1] The Life of Sir William Crookes, O.M., F.R.S. By E. E. Fournier D'Albe, D.Sc., with a foreword by Sir Oliver Lodge. London: T. Fisher Unwin, Ltd. 1923. Pp. 412. 25s.

> "In old Egyptian days a well-known inscription was carved over the portal of the Temple of Isis : 'I am whatever hath been, is, or whoever will be ; and my veil no man hath yet lifted.' Not thus do modern seekers after truth confront Nature—the word that stands for the baffling mysteries of the universe. Steadily, unflinchingly, we strive to pierce the inmost heart of Nature, from what she is, to reconstruct what she has been, and to prophesy what she yet shall be. Veil after veil we have lifted, and her face grows more beautiful, august and wonderful, with every barrier that is withdrawn."

Eleven years later—namely, in 1919—Crookes died in his eighty-seventh year, and with the words quoted above we may leave him, for no words can better express the way of his life.

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SPA TREATMENT AND DIURESIS.

The mere fact that a method of treatment has enjoyed widespread popularity through many centuries is in itself strong evidence in favour of the efficacy of such therapy, nor must we allow the possible absence of any final knowledge of the mechanism of such a method to make us sceptical as to its real value. The pharmacopœia is a catalogue of mysterious agents, and the triumphant elucidation of the action of a sparse handful of them is ample justification for our continued use of the remainder pending the day when their exact properties will be demonstrated. We must adopt the same attitude of expectant faith towards many other medical methods, and such must be our consolation in following the discussion on the diuretic action of spa waters which took place before the Section of Balneology and Climatology of the Royal Society of Medicine and was reported in our columns last week. The continued prosperity of numerous baths and spas which have been celebrated since the Roman epoch is abundant testimony to their powers, and it is impossible to dismiss their good effects as being merely the result of the abstemious régime imposed by the local victuallers.

The discussion itself cannot be said to have thrown any clear light on the action of these waters. Dr. C. W. Buckley, in his opening address, was at pains to admit this. He drew attention to the fact that the concentration of salts present in such waters is often much lower than that required to provoke diuresis when administered in artificial solution. There is not even any clear consensus of opinion as to which elements have or have not a definitely diuretic effect, Keller and Violle holding that NaCl is definitely antidiuretic whilst a host of pharmacologists maintain the contrary opinion. Effects of the waters of various springs upon nitrogen excretion are equally obscure. Extravagant claims, such as that the total daily excretion of nitrogen is increased to a notable degree, may be dismissed at once, but that some alteration in the proportion of the various nitrogenous constituents of the urine may be produced is strongly suggested by several recent researches, though in this respect the comment of Dr. W. Langdon Brown, who pointed out the wide normal variation in these constituents due to diet, must be borne in mind. In face of these difficult problems there is a tendency to seek explanations in the most recent and possibly most nebulous realms of biochemistry. Thus it was suggested by one speaker that some spa waters reduce the hydrogen-ion concentration of the blood, an effect which would, in the view of eminent physiologists, be rapidly fatal if it were possible of achievement. Others seek enlightenment by studying the radioactive properties of various springs ; that such waters are sometimes radioactive is certain, but, as Dr. Buckley pointed out, there is as yet no evidence that their diuretic properties are due to such agencies.

Recent work [1] has shown that the ingestion of water alone, without a corresponding excretion, may produce symptoms resembling uræmic convulsions, and even a fatal effect when the intake is prolonged for any length of time. These observations were made on large series of animals under careful laboratory control, and it seems probable that it is only when spa waters are similarly studied with the aid of carefully controlled experiments that we shall secure any true insight into their properties and effects.

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MEDICINE IN HOLLAND.

Education stands high in Holland. We in this country can hardly challenge comparison with a State of 7,000,000 inhabitants which has no less than three State universities—Leiden, Utrecht, Groningen ; a municipal university—Amsterdam ; a technical university—Delft ; a veterinary university—Utrecht ; and an agricultural university—Wageningen : leaving out of account altogether military, trade, and art academies and private religious institutions. Four of these universities have a complete medical faculty, and together they find occupation for nearly 75 professors teaching purely medical subjects, not including the ancillary sciences. The compulsory term of study for the State medical diploma is seven years, five of which must be devoted to clinical work, and in spite of this very high standard, on an average about 100 medical students qualify each year. In the near past, students from the Netherlands, although polyglot, have, as a rule, been able to follow the German language more easily than English or French, and were to be seen attending clinical courses in all the German-speaking medical schools of Europe, for it is the continental fashion to spend at least a summer semester away from the home school. We are glad to give in another column some information from a Batavian correspondent on current medical affairs, for we regard the time as ripe for a closer understanding between medicine and its disciples in the two countries. Prof. E. H. Starling pointed out not long ago that the unique geographical position of Holland designed it to bring this country into touch with modern European thought. Through the efforts of the Anglo-Batavian Society we have already learned at first hand of the work of Prof. Hijmans van den Bergh and of Prof. C. Winkler, both of Utrecht. There seems to be an increasing interest amongst medical students in Holland for English and American periodicals and manuals, and the pre-war statement is no longer true that 80 per cent. of students use nothing but German text-books. The medical world in Holland, as here, bears the stamp of its national peculiarities, and medical entente can only be served by mutual understanding of the scientific, practical, and social points of view of the two nations.

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[1] The Lancet, 1923, ii., 838.

Annotations.

"Ne quid nimis."

THE PREVALENCE OF INFLUENZA.

THERE has been the usual sharp seasonal rise in the deaths from influenza and respiratory disease, attended with the usual questioning as to the prospect of a serious epidemic of influenza. There is no simple arithmetical rule for prophets, and the only indications at our disposal of an approaching epidemic of respiratory diseases are (1) deaths ascribed to influenza, and (2) notifications of pneumonia. With regard to (1), there is a relatively heavy increase in the numbers of deaths both in London and the 105 great towns—the number was 103 in the week ended Dec. 8th, as against 68 in the previous week. There are also small but definite increases particularly in the great towns of Lancashire (included, of course, in the total 105 great towns). The age-distribution of these deaths is similar to that observed in the influenzas prior to 1918–19; in other words, there is no sign of the sharp change of type which was the most disquieting feature of the great pandemic. With regard to notified pneumonia, there has been a tendency to rise for some weeks, and last week there was a large increase in the North-Western area, while Yorkshire, which is usually affected early by respiratory epidemics, is now reporting many cases. The difference, however, between the notification rate this year and that of 1922 is not very great. So far as this evidence goes, the present may be regarded as a minor recrudescence, probably favoured by the fogs of last month, and perhaps by the crowds associated with the General Election.

ÆTIOLOGY OF BLACKWATER FEVER.

ALTHOUGH evidence has been accumulated all over the world that the constant factor associated with hæmoglobinuric fever is malaria, and, further, that it is the malignant tertian parasite (*Plasmodium falciparum*) which alone is concerned with the production of this disease, many observers have attempted to find another causal organism. Various organisms have been described other than malaria as the probable cause of blackwater fever, but these have all been discarded. More recently spirochætes or a special species of this group have been suspected, and in 1912 Napier favoured the view that syphilis predisposed to this condition, but Barratt and Yorke (1909), Arkwright and Lepper (1918), and Dudgeon (1921) showed there was no connexion between the two diseases. On the other hand, there is strong evidence that syphilis is the predisposing cause of paroxysmal hæmoglobinuria. True spirochætes have been found associated with hæmoglobinuric fever. Ashburn, Vedder, and Gentry, in 1912, and Cook, in 1913, described this disease associated with relapsing fever, and Schüffner (1920) described a case complicated with an attack of acute infective jaundice. Noc and Esquier (1920) found numerous spirochætes in the liver of a fatal case. These findings, however, can only be regarded as the accidental accompaniment of one disease with another. More recently Blanchard and Lefrou in 1922, using a special technique by which the citrated plasma of 10 c.cm. of blackwater fever blood was subjected to triple centrifuging, described leptospira in the deposit from three cases. The deposit from one of these cases inoculated subcutaneously into guinea-pigs produced a fatal disease, and in one of the subinoculated animals hæmorrhages were found in the peritoneal cavity and in the bladder.

Dr. J. G. Thomson, director of protozoology, London School of Tropical Medicine, who has made two expeditions to Rhodesia in 1922 and 1923 to study hæmoglobinuric fever in that area, used Blanchard and Lefrou's technique in order to confirm the work of these observers. The result of the investigation of the first six cases proved negative.[1] Low and Duncan confirmed this work shortly afterwards in one case, and more recently Thomson has brought forward conclusive evidence [2] that blackwater fever develops as the result of repeated attacks of malignant tertian malaria. The blood of 15 cases of blackwater fever was examined at different stages of the disease from the first day until recovery by Blanchard and Lefrou's method with universally negative results. The conclusion arrived at is that the numerous motile filaments seen under the dark ground illumination in all these cases and in normal cases are the well-known artefacts which have so often been mistaken by other observers in the blood of various diseases for the causal organism of such diseases. Subinoculations in guinea-pigs failed to produce any symptoms or pathological changes. From this it is concluded that there is at present no evidence that spirochætes or a special species of spirochæte are responsible for blackwater fever, and the relationship of malaria to this condition is regarded as undoubted.

A PIONEER OF PUBLIC HEALTH.

Two years ago the University of Manchester lost a valued fighter in the field of public health through the death of Prof. Delépine, and on Dec. 12th last there was unveiled to his memory a portrait bust, erected in the Public Health Laboratory of the University by former colleagues and students. The bust bore the following inscription: "Auguste Sheridan Delépine. Born January 1, 1855. Died November 13, 1921. Founder and first director of the Public Health Laboratory. Professor of Pathology 1891–1904. Professor of Public Health and Bacteriology 1904–21." The unveiling ceremony was performed by Sir George Newman, who spoke in feeling terms of the work Prof. Delépine had accomplished, for the University, for the city of Manchester, and for the public health of the nation. An outline of that work was given in THE LANCET (1921, ii., 1080), and we would here record the personal tribute paid to the worker by the Chief Medical Officer of the Ministry of Health. Prof. Delépine, said Sir George Newman, was a pioneer in associating a university with the training and work of the medical officer of health. He held strong and liberal views, springing from deep and sincere convictions, as to the value to the community and to the nation of the public health service, inculcating high ideals for public medical officers, and extending in various directions the ever-widening sphere of their work. He gathered round him a remarkable group of earnest students who gladly learned at his feet and in after years preached his gospel in various parts of the land. For he was an inspiring teacher, especially to the few, and he won the admiration and affection of his pupils. In the study of disease Delépine was chary of anything which tended to lessen the responsibility of the seeker. In his last published paper he wrote regarding the cause of disease: "I think it is better to attach too little than too much importance to personal predisposition, for the doctrine of predisposition has the same influence in medicine as that of predestination in religion; both tend to make us overlook our responsibilities."

Prof. Delépine, of French descent though a naturalised Englishman, was a man of very original mind, fertile in idea, acute in perception, resourceful in the invention of the ways and means of research, precise in its exercise, and meticulous in its findings. He was widely read in the literature of medicine and its allied sciences, with a retentive memory and a broad outlook, and able to utilise and apply the knowledge which he acquired. While possessing these exceptional gifts, Delépine was an indefatigable workman and was laboriously conscientious, reluctant to publish his results until he was satisfied that his conclusions were valid and invulnerable. An enthusiastic believer in preventive medicine and its potential influence in the life of human society, he became an inspirer and encourager of others. Though he failed to win some of the world's glittering prizes, he became something of a national leader in his subject, devoting his life and sacrificing much in order to establish a great school of public health at Manchester University. The master-word was work, and the purpose was production and service; in fact, Delépine seems to have compounded in himself some of the fundamental requirements of the new model of public health officer. He had in no small degree two of Pasteur's chief characteristics—love of truth and love of humanity. He sought truth and pursued it, and he was prepared to follow truth wherever it led. And more than that, he bent himself, through 30 years, to the task of applying knowledge to the improvement of man's estate and of directing truth to the growth and emancipation of man's mind. It is a great and splendid thing, Sir George Newman concluded, for a university and city to have such a man as Delépine. To him was given the reward foretold by Thucydides —namely, the grandest of all sepulchres, not only that in which his mortal dust is laid, but a home in the minds of men where his glory remains, carved not in stone but woven into the stuff of other men's lives.

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[1] Brit. Med. Jour., 1923, i., 986.

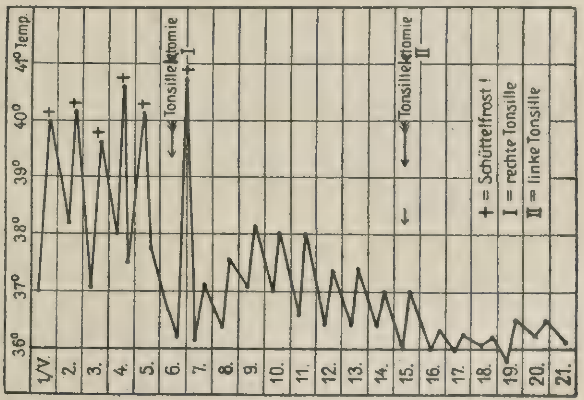
[2] Legislative Council of Southern Rhodesia, White Paper, 1923.

SICKLE-CELL ANÆMIA.

Dr. John G. Huck,[1] of the Biological Division of the Medical Clinic of Johns Hopkins University and Hospital, who reports 14 illustrative cases, defines sickle-cell anæmia, which was first described by Herrick in 1910, as a hereditary disease transmitted by and occurring in both males and females with equal frequency, in which the red corpuscles acquire a characteristic sickle or crescent shape. There are certain characteristic clinical symptoms, especially anæmia and leg ulcer. All the cases hitherto reported have occurred in negroes or mulattoes. No post-mortem findings have been recorded. The leg ulcers have the round, punched-out, and indurated appearance of syphilitic ulcers, for which they are often mistaken. The base of the ulcer is composed of granulation tissue possessing no characteristics suggestive of a specific ætiology. The surface is clean and there is a total absence of any necrotic membrane overlying it. The blood flows and coagulates normally in all forms of the disease. The number of red cells ranges from 1,500,000 to 4,000,000, and the hæmoglobin from 30 to 40 per cent. The colour-index is usually normal or high. The leucocytes are slightly increased in number, ranging from 10,000 to 20,000. Films show a moderate anisocytosis and poikilocytosis, which occurs most frequently during relapses. The poikilocytosis consists of crescentic or sickle-shaped cells with an occasional oat-shaped cell. There is a moderate degree of polychromatophilia. Nucleated red corpuscles of all varieties are present, but normoblasts are especially common. The differential formula of the leucocytes is not characteristic. The polymorphonuclear neutrophile cells are usually increased in number, and there is sometimes an increase of the polymorphonuclear eosinophiles or small lymphocytes. Large mononuclears, which may be seen engulfing red corpuscles, are sometimes present in large numbers and may be responsible for the anæmia. The number of blood-platelets is increased, ranging from 300,000 to 500,000. On examination of fresh preparations of the blood only a few red corpuscles with a crescent or sickle shape are seen at first, but after 6 to 24 hours from 25 to 100 per cent. of the cells, according to the severity of the disease, assume this form. Clinically, cases may be classified into symptomless, mild, and severe. Those who have no symptoms go through life like normal individuals, and it is only by the chance examination of incubated samples of fresh blood that the diagnosis is made. In mild cases the chief symptoms are weakness and fatigue, and occasionally muscular and joint pains, which disappear after rest in bed. In severe cases the chief symptoms are inability to work due to weakness, leg ulcers, muscular pain and stiffness, and often sharp pain in the epigastrium, especially after food. Fever is usually present, but the temperature is rarely higher than 101° F., unless there is a superadded infection such as tonsillitis, to which the patients are usually susceptible. Remissions and relapses lasting three to six weeks are frequent. In the symptomless and mild forms the prognosis is excellent, but in the severe forms it is unfavourable owing to suceptibility to intercurrent affections, especially pneumonia and tonsillitis. The condition has never been cured, but under treatment by simple hygienic measures, rest in bed, and administration of iron and arsenic, the relapses are shortened and the remissions made longer.

CHRONIC TONSILLITIS AND PUERPERAL SEPSIS.

A REMARKABLE instance of the result of a chronic tonsillar infection on puerperal infection is reported by Dr. Otto Blass,[1] of Bielefeld. The patient, aged 27, developed a high temperature with rigors three days after being delivered of a premature infant. A few days later a painful swelling of the right thigh appeared, and for the next seven weeks the pyrexia curve remained septic in character, with a daily rigor. During this time she had an acute attack of tonsillitis. (She had previously suffered with repeated infections of the pharynx.) At this stage she was admitted into the hospital in a deplorable condition of emaciation. There was marked trismus, the tongue was dry and cracked, temperature 39·2° C., pulse 130, and commencing decubitus was present. The abdominal wall was rigid, infiltration of the right parametrium could be felt, and there was a tender swelling in the right groin. Staphylococci were grown from the blood, the leucocytes numbered 23,800 per c.mm., and the urine contained hyaline and granular casts. For the next few days the temperature swung up daily to 41° C., in spite of intravenous injections of silver preparations, rivanol and chinin, the general condition becoming worse and the trismus increasing. This condition, together with the onset of aural pain, led to the diagnosis of a tonsillar infection, and tonsillectomy was performed first on the right side and later on the left. The right tonsil was found to have a small peritonsillar abscess, but the left only showed slight changes. The result of this procedure is best demonstrated by the temperature chart. With the fall of the temperature the general condition improved rapidly, the œdema of the leg and the swelling in the groin disappeared, the blood became sterile, and the urine showed no pathological changes. When the patient was discharged, apart from slight adhesions drawing the uterus over to the right, the pelvic examination revealed nothing abnormal. It is



Temperature chart, showing times of right and left tonsillectomy and rigors. (†)

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[1] Johns Hopkins Hospital Bulletin, October, 1923.

[1] Deutsche med. Wochenschrift, Nov. 16th, 1923.

possible that puerperal infection is more often than we think the result of a hæmatogenous metastasis rather than an external infection, and a more exact investigation for a possible focus might well be made in many cases. Dr. Blass mentions a second case in which tonsillectomy brought about marked improvement and caused the blood to become sterile, although unfortunately the patient died of broncho-pneumonia.

X RAY EFFECTS ON TISSUE CULTURES.

AN important contribution to the study of the changes observed in tissue cells after exposure to soft X rays was recently made by Dr. T. P. Strangeways and Dr. H. E. H. Oakley to the Royal Society.[1] The tissue cells were those from the choroid of chick embryos of six to seven days' incubation and they were cultivated in vitro. The cultures were exposed to X rays for various lengths of time while at incubation temperature. In each experiment four cultures were exposed to the X rays, two were stained immediately, and two were returned to the incubator for 80 minutes before staining. The authors describe in detail with the aid of some beautiful drawings the changes noticed in the cells under these various conditions. In common with several previous investigators the authors find that the cells in active mitosis are more vulnerable to the rays than the cells in the growing stage. The alteration in mitosis may be of quite a temporary nature, for the authors find that if cultures in which mitosis has ceased owing to irradiation are returned to the incubator for some hours, cells in mitosis are again found. Certain granular changes and fragmentation of the chromosomes at metaphase and anaphase may occur without an actual cessation of mitosis; if the radiation is prolonged the daughter cells show abnormalities and may contain two or three nuclei. The authors often refer to "breaking-down cells." The changes in growing cells are far less frequently seen than in dividing cells, but when the cells are watched on a warm stage the movements and changes of outline of the cytoplasm, nucleus, and nucleolus point to a disorganisation of the cell; in some cases the whole cell appears to go into solution in the surrounding medium. These studies are an important contribution to what we may call the direct action of X rays upon cell life. An extension of the work to other varieties of tissues can hardly fail to give valuable information upon lethal ratios for the dividing and growing cell. The bearing of such data upon therapeutic measures needs no emphasis.

TRAUMATIC MYOSITIS OSSIFICANS.

DURING the discussion on myositis ossificans traumatica, which took place at the Orthopædic Section of the Royal Society of Medicine, and which is reported on p. 1350 of our present issue, certain points were brought forward which are of the utmost importance to the general practitioner. The treatment of this condition was considered particularly from the point of view of its prevention. It is well known that this new formation of bone most often follows dislocations or fractures about the elbow in children; and whilst it cannot always be prevented, certain factors with regard to the causation are known. Following any injury about the elbow which involves tearing of periosteum, heavy massage, forced movements—erroneously called passive movements—or rough handling of the part are contra-indicated. The dislocation should be reduced, or in the case of fracture the displaced fragment brought into correct alignment by careful manipulation under anæsthesia. When there is a supra-condylar fracture, reposition of the lower fragment into correct alignment with the upper is the essential point. If this is attended to and rest enforced the result will be satisfactory, and full movement of the elbow-joint will be regained. The elbow should be put at rest in the flexed position by slinging the wrist to the neck. This method of fixation was originally described by Hugh Owen Thomas in the seventies of the last century, under the term "gauge halter." No physical treatment should be attempted for ten days, after which the sling is lengthened and the elbow allowed gradually to extend so long as the patient retains the power to regain the flexed position voluntarily. If the power of voluntary flexion is lost, the elbow should again be flexed for a few days by shortening the sling, after which it is again gradually allowed to extend. Gentle massage may be employed after ten days, but no deep kneading is to be permitted. No attempt must be made to regain movement rapidly, as for example by forced movements under anæsthesia. In the early stages such manipulation will result in greater stiffness rather than in increase of mobility, and there is in addition a grave danger of setting up the process of new bone formation in the muscles—myositis ossificans.

The importance of rest rather than movement after an injury in the neighbourhood of the elbow, especially in children, cannot be over-estimated, and its value is not sufficiently appreciated. For whilst recovery of function is regained by rest, the development of bone the production of myositis ossificans is a definite risk, which is run if force be employed. If myositis ossificans has resulted from the injury the treatment called for is again complete rest of the limb. No massage or movement must be permitted, but the elbow should be fixed in a sling in the position of flexion. The new bone will gradually become absorbed. A series of lantern slides were shown at the meeting, illustrating the complete absorption of the new bone in the course of a few months' rest. No operation should be undertaken to remove bone for at any rate six months, and until rest and fixation has had a long trial. Whilst the removal of an osteophyte blocking movement in a joint will often succeed, the results of operation on true myositis ossificans are poor. Any question of operation should be postponed for a long period, and only undertaken after careful examination, when the main mass has been absorbed and the remaining part is dense and incapable of natural absorption. Even at this late stage the results of operation are disappointing.

BITEMPORAL CONTRACTION OF THE FIELDS OF VISION IN PREGNANCY.

VARIOUS writers during the last 20 years have observed a certain degree of contraction of the visual fields on the temporal side during the late period of pregnancy. Dr. G. E. de Schweinitz, in his recent Bowman lecture,[1] on certain ocular aspects of pituitary body disorders, referred to this subject. He stated that out of 13 unselected cases of gravid women admitted to a maternity department in nine cases there was a definite contraction on the temporal side of the field from 15° to 40°. He also referred to a research on this subject by Dr. Maud Carvill, of Boston, Mass., more elaborate than any other on record. The completion of this research is now published.[2] Out of an unselected number of gravid women, the progress of whose pregnancies was normal, the visual fields were examined in 100. In the case of 12 of them the examination was conducted more than three weeks before parturition, and in their case no contraction of the visual fields was observed. On the other hand, among the remaining 88, in whose case the examination was made within three weeks of parturition, only five cases had normal fields, while the remaining 83 cases showed bitemporal contractions of greater or less extent. In 22 cases it was marked (20° or more); in 50 cases it was moderate (10° to 20°); in 11 cases it was slight (5° to 10°), contractions under 5° being taken as not outside normal range. After parturition in the great majority of cases the fields showed complete recovery. In 51 of the cases examined post partum all but two showed normal fields, an observation which accords with the experience of other observers. There seems no doubt that the cause of this phenomenon is an enlarged pituitary body pressing on the optic chiasma. That this enlargement actually takes place was shown by J. Erdheim and E. Stumme in 1909, who demonstrated the fact by the examination of 150 subjects.[3] They found that in women who had never been pregnant the average weight of the hypophysis was 61·8 cg., the maximum 75. In primiparæ the average was 84·7 cg., the maximum 110. In multiparæ the average was 106 cg., the maximum 165. After parturition there occurs a subsidence, but the increase in the number of cells is never entirely lost. The clinical investigation of Dr. Carvill shows a remarkable correspondence with these pathological observations.

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[1] Proceedings, Sect. B, vol. xcv., 1923.

[1] Trans. Ophthalmological Society, 1923.

[2] American Journal of Ophthalmology, November, 1923.

THE V.A.D.'S.

THE vision at once conjured up to most of us by the well-remembered initials V.A.D. is that of devoted and skilful service, in the theatres, wards, and kitchens of hospitals and convalescent centres during the war by amateurs who gently insisted on making a valued place for themselves in ranks where professionals formerly held undisputed sway. It is inevitable, perhaps, that the duties and responsibilities of the voluntary aid detachments should seem of less importance in times of peace, but their activities must not be lost to the community for want of encouragement and organisation. Moreover, it is to be remembered that though the familiar white head-dress and grey or blue frock stands out in our memory, the V.A.D.'s were not confined to one sex or to one service. It is gratifying that a scheme[4] for voluntary aid detachments to supplement the medical services of the Navy, the Army, and the Air Force in time of war has been approved by the Army Council. The medical services of the forces of the Crown are regarded as sufficient to meet ordinary peace requirements, but they lack certain reserves needed on either partial or general mobilisation. On the outbreak of war, therefore, these services will require the assistance of personnel of voluntary aid detachments. These reserves will be required for motor ambulance convoys, ambulance trains, general, naval, military and air force hospitals, auxiliary hospitals, rest stations, hospital ships, convalescent homes, command depôts, and entraining, detraining, embarking, and disembarking sick and wounded. The administration of voluntary aid detachments is vested in a joint council representative of the Admiralty, War Office, Air Ministry, Territorial Army Associations, Order of St. John, British Red Cross Society, and St. Andrew's Ambulance Association. The Council may authorise the appointment of committees in the United Kingdom or the British Dominions and may delegate certain powers to such committees.

Territorial army associations will be responsible for the enrolment and efficiency of voluntary aid detachments in close coöperation with the joint county committees or the body or bodies which train the personnel in their respective areas. The chief executive officer for voluntary aid detachments in any area shall be the county controller, whose duties include the organisation and maintenance of local detachments, the assumption of responsibility for the efficiency of members, the arrangements for periodical inspection and for preparations for mobilisation as indicated by the military authorities, and the rendering of returns to the appropriate office. As to enrolment a voluntary aid detachment may consist either of men or of women, but not of mixed detachments. Only British born subjects, including those of the Dominions, are eligible for enrolment. Every applicant on joining must sign a form of enrolment, and also an obligation to undertake service when called upon in the class and category in which he or she is enrolled. The following grades shall be considered officers: Controllers and assistants, commandants and assistants, medical officers, lady superintendents, quartermasters. Members of detachments will be divided into two classes: (*a*) mobile, (*b*) immobile. In the case of men the mobile members, who shall be between the ages of 19 and 40, must be prepared to undertake service with any portion of His Majesty's forces on mobilisation, either at home or abroad, in accordance with the regulations which shall be in force. The immobile members will undertake service within reach of their own homes, and must not be under the age of 18. Men enrolled for general service may be employed on any of the following duties: Stretcher-bearers, clerks, carpenters, mechanics, motor drivers, cooks, storekeepers or store accountants, radiographers, nursing orderlies, laboratory assistants, masseurs, sanitary orderlies, or any other related duties. All members must be thoroughly trained as stretcher-bearers, and a proportion must also hold certificates in home nursing, hygiene, and sanitation. Every member of a detachment must pass an annual efficiency test, and must attend the annual inspection. As to women members of detachments the regulations of mobile and immobile classes are identical with those governing the men. Women may be employed on any of the following duties: Nursing members, pharmacists, dispensers, radiographers, ward orderlies, hospital cooks, stewards, storekeepers, hospital clerks, ambulance motor drivers, dental mechanics, masseuses, laboratory assistants, optical assistants, telephone operators, and must, in most cases, have taken the certificates in first aid and home nursing.

Further information on qualifying certificates, registration, inspections, appeals, and training are included in the scheme, which is likely to revive and consolidate the interest in a movement which did so much to help us win the war. The offices of the Central Joint Voluntary Aid Detachment Council are to be at 80, Pall Mall, London, S.W., and its secretary is Lieut.-Colonel W. H. A. De la Pryme.

TUBERCLE BACILLI IN THE URINE.

HOW often do tuberculous lesions of the kidney occur in patients suffering from pulmonary tuberculosis? Can tubercle bacilli be excreted in the urine by a kidney showing no evidence of tuberculosis? Dr. F. Bedo Hobbs has attempted to answer these and cognate questions in the November and December numbers of *Tubercle*. His investigation of the records of 1000 necropsies on patients dying of pulmonary tuberculosis at the City of London Hospital for Diseases of the Chest, Victoria Park, showed that in 162 cases, or 16·2 per cent., tuberculous lesions of the kidney were found. The findings of other observers, collected by Dr. Hobbs, showed an average of 16·9 per cent.—a remarkable confirmation of his own figures which are concerned with macroscopic examinations. He has also examined a small number of kidney sections microscopically, and has found signs of tuberculosis in 32 per cent. In only a very small percentage of his 1000 cases had there been any signs of renal tuberculosis during life, and only in five cases did the disease involve the whole of one kidney, causing widespread infiltration and ulceration. Among the 55 unilateral cases in his series, the right kidney was affected in 32, and the left in 23 cases. In 100 cases of pulmonary tuberculosis without urinary symptoms he examined the urine for tubercle bacilli, guinea-pig tests being carried out by Dr. S. Roodhouse Gloyne and Dr. D. S. Page. Positive results were obtained in six cases, and in one of the cases which came to necropsy a careful microscopic examination failed to reveal any evidence of tuberculosis of the kidneys, bladder, or genital organs. Presumably, therefore, the tubercle bacilli had been excreted by a healthy kidney. This is a most important observation, as it shows that the presence of tubercle bacilli in the urine is not necessarily indicative of tuberculosis of the urinary tract. With regard to the mode of infection of the kidneys, Dr. Hobbs comes to the conclusion that the bacilli are usually carried there by the blood-stream and very seldom by the ureters or lymphatics. Although in several cases the lesions were confined to the cortex, in none was the medulla affected without tuberculous changes being found in the corresponding portion of the cortex. The lines of round-cell infiltration found connecting the cortical and medullary lesions suggested that there was a direct spread from the former to the latter, probably through the lymphatics. One of the main conclusions to which Dr. Hobbs comes is that just as tubercle bacilli may enter the body without leaving any lesion at the port of entry, so they may be excreted without producing any lesion.

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[3] Beiträge zur Path. Anat., xlvi., p. 1.

[4] War Office letter, No. 83/851, December, 1923.

PRICE AND UNIT VALUE OF INSULIN.

The Medical Research Council announce that the retail price of insulin in this country is to be reduced by the manufacturers,[1] after Dec. 31st, 1923, to 12*s.* 6*d.* per bottle of 100 units. The price of this quantity since July has been 17*s.* 6*d.*, and before that the price was 25*s.* A reduction of 50 per cent. has accordingly been made since insulin first came on the market nine months ago. This is to be attributed to the increased efficiency of manufacture and to the larger scale of production following the growing demand. It is of interest to compare the progressive reduction in price here with the corresponding fall in America. It must be remembered, however, that the American manufacture began some months before the British, that the demand and consequently the scale of production is larger there, and that advantages in respect of large slaughtering centres and lower cost of alcohol exist in America which are not enjoyed by the British firms. In April last the retail price in America, formerly higher, was 2*d.* per unit, or 2¼*d.* in an alternative dilution ; the price here was 3*d.* per unit. The American price was then reduced to just over 1½*d.* per unit, and in July the British price fell to approximately 2*d.* per unit. A more recent reduction in America brought the price there to just under 1¼*d.* per unit, and the new British price is 1½*d.* per unit.

Some further reduction in price may be found possible by the manufacturers in the course of time as the scale and therefore the economy of production increases. It is not, however, to be expected—apart from the possibility of new sources or methods being discovered—that the price can ever be brought to a low level. The manufacture of insulin on a commercial scale involves the collection of large quantities of pancreas in very fresh condition, the use of large amounts of alcohol, elaborate and delicate chemical operations requiring skilled supervision, and careful physiological testing at different stages. The cost of such items must remain high in a process which gives a small yield of the final product.

The manufacturers of the American insulin announce an increase of 40 per cent. in the value of the unit of activity, and quite properly give a scale of dosage for their product revised in accordance with this increase. This announcement makes it advisable to explain the relation of the American unit to that adopted in this country. The Medical Research Council were made aware in August of this year of the discovery of a divergence between the unit adopted in Canada and that adopted by the manufacturer in the United States. They gathered that a proposal was under discussion to remove this difference by raising the value of the American unit by about 40 per cent. At that time American insulin had for a period not been in use in this country, and investigation showed that, during the interval, the value assigned to the British unit had been rising gradually, until it had become so nearly equivalent to the Toronto unit that a very small further adjustment was needed in order to make it correspond to the higher value which, in due course, came into force for the American continent. The value of the unit employed for British insulin is, therefore, already the same as that of the newer and stronger American issue ; the only difference between the two countries, in this direction, has been that the value of the American unit has been suddenly raised, so that revision of dosage is needed, whereas that of the British unit has been allowed to rise by small stages, so that dosage has, in practice, adjusted itself. Henceforward all the insulin available in this country will, as originally planned, be standardised to the same unit.

The reduction of price mentioned above has been made in spite of this enhancement in the strength of the unit, so that the total effective reduction in cost to the patient is much larger than appears from the figures of price revision.

TREATMENT OF MELÆNA NEONATORUM.

Melæna neonatorum would seem to be one of those conditions which were regarded as most alarming and refractory to treatment a generation ago, and which now are viewed with comparative equanimity. It is a curious fact that though the mortality from melæna neonatorum has shown a marked decline, and this decline is largely due to advances in treatment, our knowledge of the underlying causes is still very imperfect. About 30 years ago the mortality was said to range from 40 to 84 per cent. This mortality came down with a run when Guttmann in 1890 introduced gelatin, which was given by the mouth or by rectal or subcutaneous injection. There were, however, several objections to this treatment: the gelatin might contain the spores of tetanus, and though maternity hospitals might always have a stock of gelatin ready, the practitioner could hardly be expected to add it to his already overloaded equipment. A few years ago the Americans, Schloss and Commisky, advocated the injection into the subcutaneous tissues of the infant's buttocks whole blood taken from a vein in the mother's arm. In a paper in the *Schweizerische medizinische Wochenschrift* for Nov. 8th, Dr. R. L. Rochat, attached to Prof. G. Rossier's maternity hospital in Lausanne, has given an account of this procedure which he has found as simple as it is effective. All the equipment needed is a 10 c.cm. syringe. About 3 c.cm. of the blood aspirated from a vein in the mother's arm are injected into the infant's buttocks at once, before the blood has had time to coagulate in the syringe. These injections are repeated several times during the first day. It is not clear how such an injection acts, but it is probably no coincidence that all the substances which, on subcutaneous injection, hasten the coagulation of blood, contain protein. And although most proteins would doubtless have a beneficial effect when injected in cases of melæna neonatorum, it is obvious that few are available in an emergency, and the great merit of the procedure recommended by Dr. Rochat is its simplicity. Since 1904 there have been 20 cases of melæna neonatorum in his hospital where the treatment with gelatin has, since 1921, given place to transfusion of blood in the manner described. Only four of the 20 infants died, and in one of these cases there was not time even to attempt treatment. A generation ago it was assumed that syphilis and infection of the gastro-intestinal tract were the chief causes of this condition, but in 19 of the 20 cases there was no evidence of syphilis, and only in one case were there signs of septicæmia in the infant. In as many as eight cases the infants were born before term, but only in two cases had there been difficult labour to which the hæmorrhage might conceivably be traced. It is unsatisfactory that we still know so little of the underlying causes of melæna neonatorum, and it is a little disconcerting that our treatment, though successful, must still be regarded as empirical.

H.M. the King has become Patron of the Royal Society of Tropical Medicine and Hygiene.

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[1] We are informed that Insulin "A.B." Brand (Allen and Hanburys, British Drug Houses, Ltd.) will be supplied from Jan. 1st, 1924, in (1) phials containing 5 c.cm. or 100 units or 10 doses at 12*s.* 6*d.* each, or (2) phials containing 10 c.cm. or 200 units or 20 doses at 25*s.* each.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

L.—THE TREATMENT OF EPISTAXIS.

In order to understand the rational treatment of epistaxis, certain premises have to be borne in mind; such are the age incidence, the position of the hæmorrhage, and the ætiology of the condition. Rare in young children, its frequency increases from the age of five up to adolescence, when it is at its maximum; then gradually diminishes, to increase again with advancing years when it is seen in its gravest form. It is found more commonly in males than in females. The bleeding occurs from one of four positions, the commonest being in what is known as Little's or Kiesselbach's area; this is situated on the septum half an inch behind its anterior edge and a quarter of an inch above the floor. Quite 90 per cent. of all cases occur from this area, where there is a close anastomosis between the spheno-palatine, anterior ethmoidal, and a septal branch of the coronary arteries and their accompanying venules. The other three sites are: a spot on the septum opposite the anterior end of the middle turbinal; the anterior end of the inferior turbinal; and, as pointed out by Kelly, a profuse venous hæmorrhage may occur high up from the anterior ethmoidal veins, these veins anastomosing with the veins of the dura mater and with the superior longitudinal sinus. The ætiological factors are numerous and are best classified into local and constitutional.

Local Factors and Constitutional Factors.

The chief local causes are: traumatisms, accidental or surgical; ulcerations of various types; new growths—especially sarcoma and septal angeioma or "bleeding polypus"; certain nasal diseases, especially atrophic rhinitis and rhinitis sicca, in which crust formation occurs, the separation of these crusts, either automatically or intentionally, leading to excoriation and hæmorrhage. This crust formation, with its accompaniment of nose-picking, is one of the common causes of nose-bleeding in children, in whom epistaxis is also a symptom of the presence of adenoids; when unilateral and accompanied by a muco-purulent discharge it is usually the result of a foreign body.

Under *constitutional factors* we have to consider firstly, pathological states of the blood, the more important being hæmophilia, various anæmias—especially pernicious anæmia, leukæmia, lymphadenoma, splenic anæmia, infantile and adult; malaria, purpura, scurvy, and toxic jaundice. Another constitutional factor is associated with increased blood pressure or vascular congestion, either organic or temporary. Of the organic type, we get cardiac affections, particularly those causing engorgement of the right side of the heart with back pressure, cirrhosis of the liver, chronic renal disease, bronchitis, emphysema, and whooping-cough. Of the temporary causes the chief are: violent physical exercise, the epistaxis of puberty, and of the menopause. Epistaxis also occurs as a symptom in the early stages of certain acute infective diseases, such as typhoid, scarlet fever, influenza, acute rheumatism, diphtheria, measles, and German measles. It is also seen in rarefied air, as in mountaineering and aviation.

Local Treatment.

The treatment must be considered with regard to the cause. Where this is a constitutional one dependent on an increased blood pressure, it should be recognised that such bleeding is at first distinctly beneficial and may avert a cerebral hæmorrhage. Where, however, the bleeding becomes excessive or where there is no constitutional cause, in the first instance, certain household remedies may be applied—such as pinching the nostrils so as to press the alæ tight against the septum; this will stop the bleeding in a large percentage of such cases. Cold ice-swabs can be applied to the nose and the nape of the neck, and the feet placed in hot water, the patient being in a sitting position. These failing, the nose must be cleared of all blood-clot in order to ascertain the exact bleeding-point. A good light is necessary, either a frontal mirror to reflect the rays of an electric bulb or lamp, or, better still, a good photophore run from an accumulator. The nose should be sprayed with a solution of cocaine combined with 1 in 1000 adrenalin, not only for allaying the pain and discomfort of the examination, but also for its vaso-constriction properties. Hydrogen peroxide, 10 volume strength and used cold in a spray, is useful for cleaning out the clot and is also a hæmostatic. Usually the bleeding spot can be seen in the "hæmorrhage area" indicated and can be stopped after cocainisation by applying a flat cautery point at a dull red heat, thus sealing off the mouth of the vessel; or, failing a cautery, the application of a 50 per cent. solution of nitrate of silver, or of pure carbolic acid, on a probe with a small mop of wool, is usually effective. Care should be taken that only a very little of the solution should be used on the mop—just enough to touch the bleeding-point. The older methods of inserting into the nares a plug of wool soaked in perchloride of iron, tannic acid, &c., are to be deprecated, owing to the spreading of the solution with consequent damage to the delicate ciliated epithelium of the mucous membrane.

Should these methods fail, or not be applicable, two chief alternatives remain: either to pack the nose with a half-inch gauze plugging soaked in 1 in 1000 adrenalin solution, or the insertion and inflation of a distensible bag such as Cooper Rose's or Howard's—of these bags the latter has the advantage of not perishing easily and so can be always kept handy for use. Howard's bag has an introducer and with this it is passed into the nasal cavity, keeping well along the floor until practically the whole length of the bag has been introduced; it is then distended with a small bellows and a tap on the tubing of the bag is turned to prevent the air from coming out. The bag fills the whole nasal cavity and so by pressure prevents the bleeding. In 24 hours this bag is removed by opening the tap and allowing it to collapse, when it can be easily withdrawn without any danger of restarting the bleeding. Plugging with gauze has the great disadvantage that its removal in 24 hours is apt to restart the bleeding. This can be partially obviated by using gauze impregnated with adrenalin and soaking just before insertion in liquid paraffin; it is then not so apt to stick on removal.

Internal Remedies.

A hypodermic of morphia gr. $\frac{1}{6}$–$\frac{1}{4}$ has a marked beneficial effect, both as a hæmostatic and in quietening an excited and alarmed patient. Various hæmostatic sera for injection have been put on the market, but my experience has not been encouraging, and in a few cases disagreeable subsequent symptoms followed their use. The internal administration of calcium lactate has been advocated; all that can be said is that it does no harm and can be tried for the repeated hæmorrhages in the various blood conditions. Where pathological conditions exist on which the hæmorrhage is dependent these naturally have to be dealt with in order to avoid recurring attacks.

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Recent articles in this series are:—

XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham. XXXIX. Flat-foot, by Mr. Blundel Bankart. XL. Medical Treatment of Early or Suspected Duodenal Ulcer, by Dr. J. A. Ryle. XLI. Retention of Urine, by Mr. J. Swift Joly. XLII. Treatment of the Neurotic, by Dr. Kinnier Wilson. XLIII. Blepharitis and Styes, by Mr. Affleck Greeves. XLIV. Internal Derangement of the Knee-joint, by Mr. R. C. Elmslie. XLV. Cœliac Disease, by Dr. R. Miller. XLVI. Varicose Veins, by Mr. Philip Turner. XLVII. Colles's Fracture, by Mr. Harry Platt. XLVIII. Pyelitis, by Sir J. Thomson-Walker. XLIX. Prolapse, by Mr. Beckwith Whitehouse.

Special Articles.

IMPERIAL CANCER RESEARCH FUND: SCIENTIFIC REPORT.[1]

THE Eighth Scientific Report issued by the Imperial Cancer Research Fund under the direction of the Royal Colleges consists of four reprints of papers published in various journals since the issue of the Seventh Scientific Report in 1921, and six hitherto unpublished communications. Dr. J. A. Murray, in a brief preface, points out that these papers fall into two groups. Those at the beginning of the Report deal with the behaviour and character of cells already cancerous. Dr. B. R. G. Russell's two papers on Carbohydrate Metabolism of surviving Normal Tissues and Tumours, Dr. W. Cramer's discussion of the Relation of Vitamin Deficiency to the Growth of Cancer, and Dr. A. H. Drew's two papers on Tissue Culture come into this category. Those in the second group deal with the induction of cancer: the changes which cells undergo in becoming cancerous. Dr. A. M. Begg's descriptive account of Infiltration in Tar Carcinoma heads this part and partakes partly of both categories. Dr. Russell's work on the Production of Tar Sarcoma and Dr. Murray's paper on Primary and Secondary Resistance to the Induction of Cancer are followed by Dr. A. Scott's monograph on Paraffin Dermatoses and Cancer in the Operatives of the Scottish Shale Oil Industry. The last-named paper is included in the Report because it embodies the results of an unintentional experiment on a large scale on the human subject, carefully observed and recorded over a long period. As the same favourable conjunction of material and observer is unlikely to recur it was deemed advisable to make an adequate permanent record of it widely available. Since the papers reprinted from various journals were for the most part noticed in our columns on their appearance, we propose to deal here only with some of those papers in a most comprehensive Report which are now issued for the first time. Among the most important of these is the survey by Dr. Cramer of

Dietary Deficiencies and the Growth of Cancer.

He points out that vitamins are often described as "growth substances" or "growth factors," because in their absence from the food a young animal such as a rat either completely ceases to increase in weight and size or the increase is retarded. If vitamins are essential for growth, as is so generally supposed, the possibility suggests itself of controlling the growth of cancerous cells by dietetic means in this way. Experiments along these lines, carried out by Drummond in 1916, yielded entirely negative results, and Dr. Cramer's observations confirm Drummond's results and show that they are applicable to all kinds of cancerous cells. If the premise is true that vitamins are necessary for the growth of normal cells, then there appears to be disclosed a fundamental biological difference between the factors controlling the growth of normal cells and of cancerous cells. Dr. Cramer's investigations, however, have led him to reject the generally accepted premise that the life and growth of normal cells are dependent on the presence of vitamins, so that in this respect no fundamental difference exists between normal cells and cancer cells.

The effect of vitamin deficiencies on tumour growth was studied in mice and in rats. In no case did a growing tumour recede, nor was its growth even arrested, as a result of withholding either vitamin A or B from the food either separately or jointly. The contrast between the effect of the vitamin deficiency on the tumour and on the animal itself was very remarkable. Tests were also undertaken to ascertain whether an abundant supply of vitamins has a stimulating effect on the rate of tumour growth when compared with a restricted supply of vitamins. The effect of adding an abundant supply of vitamins to the ordinary laboratory diet in the form of cod-liver oil and marmite is to produce a much more rapid increase in weight and stature of the host without in any way affecting the rate of tumour growth. There is therefore no reason to fear that an abundant supply of vitamins might be harmful to patients suffering from cancer. Since the continued growth of cancer cells in animals suffering themselves from vitamin deficiencies might be accounted for by postulating for cancer cells either an increased affinity for vitamins or the power to synthetise vitamins, experiments were performed to test this possibility, but no support for these theories could be obtained. It therefore appeared necessary to test the correctness of the premise that vitamins are necessary for the life and growth of every cell and to study the mode of action of vitamins, and this investigation was undertaken by Dr. Cramer with the collaboration of Dr. A. H. Drew and of Dr. J. C. Mottram of the Radium Institute. The results, published in THE LANCET and elsewhere, show that the fact that the life of a highly differentiated animal is dependent on the presence of vitamins in the food does not necessarily imply that vitamins are necessary for the life of all the cells of such an animal. A similar objection is raised against the deduction that vitamins are essential for "growth." The expression "growth" is popularly used to denote the increase in size of a young highly differentiated organism after birth. It is well known that anything that interferes with the general health of a young animal will retard its "growth" as measured by its increase in size and weight. One may therefore use the regular increase in weight or stature as an indication of the general good health of a young animal. But to interpret any deviation from the normal as indicating the absence of some factor essential for growth generally is not admissible. There is, therefore, a considerable gap between the experimentally observed facts and the generalisation, which has been drawn from them, that every cell requires vitamins for its life and growth. If all cells were dependent on vitamins one would expect a condition of functional decline or structural atrophy affecting all the cells. But the atrophy affects very specifically certain tissues or groups of cells, and what is more, deficiency in one vitamin affects one specific tissue, deficiency in another vitamin affects an entirely different group of cells.

The evidence is even more conclusive when we take the isolated cells of such a highly differentiated organism. Dr. Drew has been able to analyse the factors which are essential for the life and for the growth of the isolated cells of a rat. These factors cannot be replaced by vitamins. Moreover, one of these factors is very thermolabile, being destroyed by heating to 60° C. for 30 minutes. The other factor is set free or formed by normal living cells as the result of damaging them. In all these respects these factors differ from vitamins.

The Effect of a Deficiency in Specific Amino-Acids on the Growth of Cancer.

It seemed of interest to study in comparison with vitamin deficiencies the effect of a deficiency in the diet of a well-defined chemical substance which is known to be essential for the life of highly differentiated animals as a whole. Hopkins and Willcock showed in 1907 that the amino-acid tryptophane cannot be synthetised by the organism, but must be supplied in the food if an animal is to grow and to live. The total amount of tryptophane present in maize meal is very small and was proved by preliminary experiments inadequate to support the life of a rat. The dietary was identical with the basal ration given in the vitamin experiments, except that the casein was replaced by maize meal. The general effects produced by a tryptophane deficient diet in young rats are remarkably similar in many respects to those occurring in the absence of the vitamin B. But there are features which distinguish the later stages of this amino-acid deficiency quite sharply from the vitamin B deficiency. The hair falls out in patches after six or seven weeks of this diet, and after another eight to ten days there is an extensive œdematous condition extending over parts of the trunk and stretching the skin. Of the organs the most striking naked-eye change is presented by the pancreas, which is completely disorganised by œdema. Microscopic examination has only been made so far of the thyroid and adrenal glands. The adrenal gland shows no very distinct alteration; a very profound change was found, however, in the thyroid gland, and the morphological appearances of the thyroid gland taken in conjunction with the condition of the fur indicate that the absence of tryptophane produces a condition of hypothyroidism. There is, therefore, a very specific relation between this amino-acid deficiency and certain endocrine organs. The view that the thyroid needs a supply of tryptophane for its specific functional activity is confirmed by the fact that according to Kendall the active principle of the thyroid, thyroxin, is an iodine derivative of tryptophane. The same specific relation appears to exist between tryptophane and the pancreas. These specific lesions resulting from tryptophane deficiency have apparently not been noted before. The general significance of these observations is not considered in the report, the object of the experiment having been to establish the fact that although most, if not all, cells of the body require tryptophane for the building up of their protoplasm, there is a specific demand for tryptophane on the part of certain cells, and as the result of an inadequate supply specific lesions with specific symptoms.

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[1] Taylor and Francis, Red Lion Court, Fleet-street, E.C. 1923. Pp. 42. Price 20s.

If a tumour is transplanted into a rat which has been kept for several weeks on a trytophane-free diet, it takes and grows progressively, although not quite as rapidly as in normal rats. The rats were kept for three weeks on the special diet, so that a distinct deficiency in tryptophane was present, as shown by the loss of weight and subnormal temperature, by the time the tumour cells were implanted into the animal. The active proliferation of the tumour cells under these conditions is a very striking phenomenon. Another remarkable feature of these experiments was that the presence of the tumour aggravated the deficiency so far as the host was concerned, by accelerating the onset of the specific symptoms and the final decline of the host. The slight retardation in the rate of tumour growth which does occur is adequately accounted for by the severe pathological lesions which develop progressively in the organism of the host carrying the tumour. That progressive growth does occur under such conditions is more remarkable than that the rate of growth is not as rapid as in a normal host. The presence of a mass of rapidly growing tumour cells which are known to require a supply of tryptophane for the building up of new cells reveals a clear and significant difference between the deficiency of such a substance and the deficiency of vitamins. As we have shown, the presence of a tumour does not accelerate the onset of the symptoms due to the vitamin deficiency. The results of the tryptophane deficiency confirmed the conclusion that vitamins are not required by either normal or cancerous cells for their growth or their life.

Dr. Cramer adds some general conclusions on the elation of diet to cancer and on the biochemical mechanism of growth, which should receive careful tudy.

Dr. A. M. Begg gives an account of a histological tudy of the

Dissemination of Tar-cancer in Mice,

specially of the local spread of epitheliomatous growths produced by repeated application of coal-ar or extracts of coal-tar to the skin of mice; in ll, 140 tumours were available for this purpose. The author demonstrates that dissemination takes place by way of lymphatics, blood-vessels, and also along nerve trunks; this last route is of interest from many points of view, and is fully discussed.

Dr. B. R. G. Russell describes an

Experimental Osteo-sarcoma of Rat.

This tumour occurred in an elderly female rat, one of the series of 40 animals which had been inoculated subcutaneously with tar once a week for 12 months. The inoculations ceased after this period, but the four survivors were kept under observation and examined at intervals. Six months later, the single rat remaining alive was found to have a hard but apparently tender nodule situated beneath the skin of the right groin, about the site where the tar inoculations had been done. During the next three weeks the tumour grew steadily and fairly rapidly, more than trebling its bulk in this period. Excision of the growth was performed under ether anæsthesia. Microscopically the tumour is a polymorphic-celled sarcoma containing bony particles and osteoid tissue. It is readily transplantable into normal rats, transplantation being usually successful in 60 or 80 per cent. of the cases; the daughter tumours grow rapidly, but many regress and disappear entirely after three or four weeks' growth. From the point of view of the experimental production of cancer, this case is of special interest because of the long interval, five and a half months, elapsing between the cessation of tarring and the detection of a growth.

Dr. J. A. Murray discusses

Primary and Secondary Resistance to the Induction of Cancer.

Primary Resistance.—The researches on experimental carcinogenesis of the past ten years have familiarised pathologists with the constancy with which a continuation of the effective stimulation over a considerable time is essential to successful induction of cancer. This feature of the course of such experiments harmonises with the chronic character of the irritations which clinical experience of the disease in man and animals has shown to be nearly universal in those forms of the disease where such a nexus can be inferred. Taken in conjunction with the histological identity of the lesions, it gives us reasonable assurance of the fundamental identity of the processes involved in cancer as it occurs naturally and under experiment. The application of tar is the only method used to produce cancer in these experiments. The length of time which elapses from the beginning of tarring till real autonomous growth sets in shows great variation even in animals of the same species. In the mouse this interval may be as short as three months, or as much as 18 months, and in one experiment a mouse remained free from growth, although tar had been applied to the same area twice weekly for more than 18 months. The majority of mice, however, develop skin carcinomata within six to nine months of tarring applied twice weekly. The extent of the area painted appears to have little influence. Very similar results have been obtained by painting the whole dorsal surface of the animal (Deelman), or an area of a square centimetre (Fibiger and Bang), or less (Murray and Woglom). The frequency of the application, as might be expected, affects both the rapidity of induction and the percentage of success. Even a reduction from twice to once weekly prolongs considerably the interval necessary to produce cancer in mice. Deelman, by scarifying the skin of mice before treating them with tar, shortened the time necessary to produce cancer by roughly a quarter; this observation is in agreement with the work of Drew by the method of tissue culture on the mechanism of repair.

In the past one has been accustomed to regard the preparatory period of chronic irritation which precedes the development of cancer as occupied in a gradual cumulative removal of resistance on the part of the organism to the unrestricted powers of growth of its constituent cells. It is more likely that in cancer the cell acquires new properties, exploitations of the normal cell activities, but acting in a new way with disastrous consequences to the organism. Two other features of the development of cancer under experimental conditions bear on this conception of the secondary character of the neoplastic transformation. The first is the discrete focal character of the process. Growth begins in isolated, usually minute, areas and not diffusely throughout the whole zone of application of tar. The second is the existence of a latent period, very little affected by continuation of the irritant, as indicated by Deelman's work, and emerging clearly from the deliberate experiments of Leitch and of Bang. These authors, working independently, stopped the applications after two, three, or more months in animals which had shown no proliferative changes or only slight hyperplasias, and found cancer appearing after a further interval at the treated site. In several instances the local hyperplasia had regressed and the skin had become smooth, and the new growth started in the otherwise normal but hairless area.

Secondary Resistance to Cancer Production.—The strict localisation of experimental tar-cancer to the area painted would lead one to expect that subsequent tarring of another area remote from the first would again result in the production of a fresh primary growth at the new site. Experiments of this kind frequently end prematurely by the death of the animal from intercurrent disease or from metastasis in internal organs from the first primary growth. For this reason, although these attempts have been carried out for more than two years, in more than 50 mice, in which experimental tar-cancer had been produced, in only three was the second tarring at all commensurate in duration with the first. In none of these mice was there any indication of proliferative changes at the second site. Taken by themselves, these observations are without significance, except incidentally, for the doubt they throw on the presumed predisposing action of age as increasing the liability to cancer, if no other factor be assumed to operate. The result of a similar trial in mice with spontaneous mammary cancer, however, increases the probability that these negative results are not fortuitous, but due to a real insusceptibility of the animals to the carcinogenetic action of tar. The tarring of 14 mice in which spontaneous mammary carcinoma had been removed by operation resulted in the growth of a tumour in only one animal.

Another experiment was carried out to see how long the first stimulation must precede the second in order to prevent the development of cancer from the latter. Only nine mice out of 50 used survived long enough to develop tumours. They had been painted twice weekly on the left shoulder with the ethereal extract of tar with which most of these experiments have been performed. Seven weeks after the beginning of the tarring, applications were begun on the right flank, unaltered hairy skin intervening between the two areas. In two mice carcinomata have developed at both sites and practically simultaneously. In four no growth has been produced at the second site, although in all but one which died early, tarring has been kept up for a period, as long as, or longer, than was necessary in the first instance. In three mice retarded development of a tumour was obtained at the second site.

Some of the peculiarities in the results of another experiment, planned originally to show the relative carcinogenic efficacy of the alcohol-soluble, and of the ether-soluble fractions of tar in comparison with the unaltered whole-tar, bear out this conclusion of a general systemic effect of the development of one primary growth, on the liability of the animal to develop another primary growth. The experiments show that the induction of a fresh primary growth after a first has been definitely established, meets with a very intense resistance, whether the first tumour be of the same parent tissue or another. The nature of this secondary refractoriness to the induction of cancer is obscure. It is not a resistance to growth, but is, apparently, an inability to react with cancerous proliferation to procedures which initiate it with certainty in normal animals.

The nature of this refractory state must be the subject of further investigation. The rarity of multiple malignant new growths in the same individual finds a rational explanation by it. Its greatest interest and importance, however, lies in the indication it gives of a systemic constitutional change in the organism in which cancer has developed, a change which, if it could be recognised with certainty and rapidity, would enable us to recognise cancer in its earliest stages, and could we produce it without initiating new growth, would place in our hands a rational means of prevention.

The last paper in the report is by Dr. Alexander Scott, Medical Examiner of Paraffin Workers for Scottish Oils, Ltd., on the

Occupation Dermatoses of the Paraffin Workers of the Scottish Shale Oil Industry.

This paper, which is illustrated by excellent photographs, is based on the experience of over 24 years' continuous practice in the centre of the Scottish Shale Oil Industry, and on the results obtained during the past four years in carrying out routine examinations at intervals of three months of every workman employed in the paraffin departments of the various works in which the refining of paraffin is carried out. Those employed in the paraffin departments suffer from various well-defined skin lesions, due entirely to their working among and handling oily paraffin in several of the stages of the process of refining. These "occupation dermatoses" occur in approximately 50 per cent. of the workmen engaged in refining paraffin; the lesions appear in a few weeks or months after beginning work in the paraffin departments, and persist to a greater or less extent throughout the length of employment as paraffin workers; they disappear (at least the less chronic types) in a short time after ceasing work among paraffin.

Occupation Dermatoses.—The skin lesions due to contact with oily paraffin in a crude or semi-refined state may be described as conforming to the following types, of which one only or several may be found on the same individual:—

Occupation Comedones.—The comedones occur in parts exposed to contact with paraffin products, especially over the flexures of elbows, posterior aspects of elbows, upper aspects of shoulder-joints, and occasionally over the knees. Their origin is purely mechanical, being due to obstruction of the sebaceous ducts with semi-solid paraffin substances, or to thickening of the superficial layers of the epidermis, causing obstruction of ducts.

Folliculitis—Peri-folliculitis—Follicular Dermatitis.—This is one of the most prevalent forms of skin lesion occurring among paraffin workers, and consists of destruction of the hairs and hair follicles as the result of a mild inflammatory reaction set up by the action of shale oils. The follicles become somewhat dilated and are filled with epithelial debris and dirt, so that they appear as closely grouped clusters of black points over the parts affected.

Dermatitis Pustularis.—Two types have been observed: (*a*) one in which the condition is characterised by the appearance of numerous small pustules over the anterior aspect of the body and limbs; and (*b*) one in which the pustular eruption is due to the breaking down of the typical papule, which is the most prevalent form of occupational eruption.

Papular Dermatitis—Erythema Papulare.—This is by far the most common type of skin lesion met with among the paraffin workers of the Scottish shale oil industry, between 40 and 50 per cent. of the workers being affected. It consists of an eruption of small rounded elevations of a reddish colour, varying in size from that of a small peppercorn to that of a small pea.

Erythema Simplex.—This consists of a mild hyperæmia in which the redness is distributed uniformly over the forearms. The first appearance is a slight blush, followed by a greater degree of redness, which in the early stages disappears on pressure, to reappear when pressure is withdrawn.

Dermatitis Erythematosa.—This is essentially a dermatitis venenata of a subacute or chronic type, due to the irritant action of semi-refined paraffin on the tissues of the skin over a lengthened period, for years in practically every instance. It represents a further extension of erythema in which the congestion gradually merges into a chronic inflammation of the various layers of the epidermis and cutis vera, followed by induration, and, in the most advanced stages, by partial or complete destruction of small areas of the skin in the affected parts. The early appearances are first seen on workmen after continuous contact with paraffin substances for seven or eight years. The indurative stages become more pronounced as the periods of employment get longer. There is frequently a tendency to the formation of small, flat, scaly warts, usually oval or circular in shape, and a very important feature of chronic paraffin dermatitis, once the "warty stage" has been reached, is that the tendency towards the formation of epithelial hyperplasias may continue long after workmen have been removed from contact with paraffin irritants.

Epithelioma (*Paraffin Workers' Cancer*).—Epitheliomata as seen among the paraffin workers of the Scottish oil industry may be defined as epithelial growths followed by ulceration and necrosis of tissue, having their origin in the epithelial layers of warts or papules. This condition occurs in workmen about or over middle life, who have been paraffin workers for long periods—20 years or more. They usually arise from warts due to chronic dermatitis or the indurated papules already described, and therefore usually coexist with an advanced dermatitis erythematosa in which wartiness is a prominent feature, or with indurated papules of a simple nature. The usual appearance is that of a gradually growing epithelioma in the midst of a chronic indurated dermatitis with numerous simple warts or indurated warty papules, only one of which has become malignant. More than one epithelioma at one time seldom occurs on the same individual, though it is not uncommon for the same workman to have different growths at various times over a period of years. The warts or papules from which this condition arises have, as a rule, been present for many years in a benign form until the epithelial covering begins to proliferate more rapidly, with increasing growth of the primary lesion, until the characters of malignancy develop. Clinically, the epitheliomatous growth, as occurring in the Scottish oil trade, differs in no respect from that generally described in text-books, while microscopically it shows the same proliferation of epithelial cells forming cell-nests, with infiltration of the surrounding and deeper structures. The malignancy for a long time is not great, and the lymphatic glands do not become involved till a late stage; but this varies according to the situation, the glands being involved earlier when the lesion is situated on the scrotum than when the site is on the arm or forearm. The most common situations are on the back of the hands, lower third of forearm, and scrotum. It has been seen on the face at the outer and inner angles of the eyelids, the features of rodent ulcer being sometimes assumed. A point of importance is that, while the various forms of dermatitis and other skin lesions described are only got among the actual workers in or about the paraffin departments, cases of epithelioma have in the past been more prevalent among workmen in other parts of the various oil works, and under conditions in which there is not necessarily prolonged contact with or handling of oil, in any of the stages from the crude to the semi-refined and ultimate products. It has occurred in retortmen, labourers, and stillmen.

In all, 65 cases of paraffin epithelioma have occurred during the 22 years prior to Dec. 31st, 1921, and as far as possible the differentiation between paraffin pressmen (green shed workers) has been made, though it may be that some of those designated oil workers and labourers may actually have been paraffin shed workmen. In the oil works comprised under Scottish Oils, Ltd., there have been employed approximately 5000 workmen annually for many years, this number including oil workers, labourers, retortmen, and all forms of labour necessary in the distillation of shale and the refining of its products. It will thus be apparent that the cancer incidence is not high, being approximately 1½ per cent. in 22 years, or under 0·1 per cent. per annum.

Discussing the influence of the various constituents of oil shale in the production of dermatoses, the author concludes there is no sufficient evidence to ncriminate any particular one, though he thinks it s possible that sulphur compounds may be the exciting cause, and he summarises the position thus: The various forms of dermatitis, whether papular, pustular, or erythematous, found among paraffin workers are due to direct contact with some chemical substance which, by the formation of warts and indurated growths, acts as a predisposing cause of epithelioma; the determining factor or xciting cause of epitheliomatous degeneration is, in common with all other forms of cancer, unknown. Length of service and personal idiosyncrasy are important predisposing causes. The paper contains a useful bibliography and much valuable information about the conditions obtaining in the Scottish shale oil industry.

SOME COMMON MOUNTAIN AILMENTS, AND HOW TO COMBAT THEM.

BY BERNARD HUDSON, M.D. CAMB., M.R.C.P. LOND.

I HAVE been asked to write a few notes for the benefit of those numerous people, who will be shortly spending their vacations in the Swiss Alpine resorts, as to how certain unpleasant complications of a Swiss holiday may be counteracted.

Mountain Sickness.

To take first what is usually known as mountain sickness, it should be mentioned, at the outset, that true mountain sickness does not occur until very high altitudes are reached. An interesting account of mountain sickness, and the sensations experienced at great altitudes—for example, 8000 to 20,000 feet—will be found in "Travels Amongst the Great Andes of the Equator," by Edward Whymper, where the effects of very high altitudes (and consequently low pressures) are carefully analysed as regards pulse, body temperature, breathing capacity, fatigue, and general sensations. What we are concerned with here, however, are the usual feelings of discomfort experienced by some people in ascending to a moderate altitude, and these are due to want of acclimatisation. As Turban has long insisted, everyone who comes up out of the lowlands into the high mountains has to go through a process of acclimatisation, even though he may not be aware that it is taking place. The following points should be remembered. As one ascends, the barometric pressure falls, and corresponding with the lower barometric pressure there is a fall in temperature. The humidity of the air, also, is much less, and the upper layers are very dry. Owing to the absence of water vapour, dust, smoke, and micro-organisms, the heat rays of the sun pass much more freely at high altitudes, and are very much more active; this is also the case with the light rays and the chemical rays. The radio-activity of the sun is greatest when the winter snow has fallen.

Upon the healthy person the general effects of altitude may be summed up as follows. The metabolism of the body is increased, the respirations and the pulse-rate are quickened, and the body temperature tends to be slightly higher than at sea-level; in other words, even at a moderate altitude, such as 4000 to 5000 feet, the usual height of a mountain resort, the rate of living is higher. Another point is that at sea-level the normal red blood-count is about 5 million corpuscles per cubic millimetre, and the percentage of hæmoglobin about 90; at an altitude of about 5000 feet, the blood in order to compensate for the diminished tension of oxygen in the air becomes richer in both red cells and hæmoglobin, the average red count at such an altitude being 7 million red cells per cubic millimetre, the hæmoglobin 100 per cent. or even more.

Thus, it will be understood that in order to get used to a high altitude the bodily functions have to become somewhat modified, and for this to be established a little time is required, varying from a few days for the ordinary healthy person to three or four weeks for those with less responsive power, or those who are definitely ill. Until the person is acclimatised there is a liability to feel a little discomfort; for instance, shortness of breath after exertion, palpitation, a feeling of oppression at night, sleeplessness, headache, and general malaise.

Persons, therefore, going out to Switzerland for strenuous winter sports, such as ski-ing, should take things somewhat easy to start with, and gradually accustom themselves to the altered conditions. To go for long expeditions directly on arrival is foolish, and is looking for certain trouble. For a person of nervous temperament to do so may imperil the entire advantage of the holiday.

Sun-burn.

Bad sun-burn is not common in mid-winter, but it is a real danger to be reckoned with from February onwards. Sun-burn depends upon various factors, of which altitude is the most important; the higher one goes the more likely one is to get sun-burnt. New snow is more effective in producing this than old snow. On the unprotected, unpigmented, and unprepared skin of persons coming out from England, long exposures to the hot Alpine sun, combined with the glare from the snow, can cause very severe burns. There may be produced definite toxic symptoms and fever. The most simple means of preventing this is to grease the face; for this purpose cocoa-butter is good, and two other preparations, both of which are excellent protectives and can be obtained in Switzerland, are Secheyé cream and anti-lux.

Snow Blindness.

Snow blindness, like sun-burn, is more likely to occur with new snow than with old snow, and at higher altitudes rather than at lower ones. The eyes become very sensitive to light, and the lids may become puffy and cracked, and may be glued together with dried secretion and refuse to open. There is much lacrymation. The pain is acute, and the whole condition is one of extreme discomfort. It can, however, be easily guarded against by the simple measure of wearing the amber-coloured glasses suggested by the late Sir William Crookes.

Montana, Valais, Suisse.

HOLLAND.

(FROM OUR OWN CORRESPONDENT.)

The Medical Profession in Holland.

IN Holland there are altogether about 3500 medical practitioners—i.e., only 1 per 2000 inhabitants. As of this number only about 2700 are general practitioners, the remainder being specialists and medical "officials"—i.e., medical officers of health, military surgeons, &c.—it might appear from an English or American point of view that the Dutch general practitioner was overburdened with work, and that medical care leaves something to be desired. Such, however, is not the case, for it must be remembered that Holland is one of the most densely populated countries of Europe, and that the roads in this "flat" land are, generally speaking, good. Moreover, the Dutch population is fairly healthy, and people make relatively few calls on the doctor. Also medical fees are low, and a fairly large practice is required to produce an adequate yearly income. In general, a gross income of £1000 per annum is looked upon as an enviable one. The majority of general practitioners cannot command that figure, but there are, of course, exceptions. The ranks of the specialists are, as elsewhere, limited; and perhaps the most fortunate members of the profession are the clinical professors of medicine. The Government salary of about £750 to a medical professor is not in itself sufficient for a scientific worker without other source of income, but the majority of clinical professors are very much in demand as consultants, and may thus manage to double their income. For a consultation in his office a professor rarely gets more than £1, while the fee for an operation may be as high as £100 to £250. The bulk of operations are performed for £50 or less. The fees of general practitioners vary between 1*s.* 6*d.* and 10*s.* per visit; in the country a surcharge is made for distance and loss of time. The specialists' fees amount to about twice the general practitioners' fees.

The Panel Doctor in Holland.

In view of the recent panel crisis in England it might be of interest to give some data regarding medical fees in respect of sick-clubs in Holland. The old "Battle of the Clubs" has been brought to a decisive issue largely through the activity of the Dutch Medical Association, and a better understanding has been reached between the friendly societies and the doctors. Nevertheless, there still exists, here and there, something of the methods which Sir Clifford Allbutt stigmatised as "the obsolete practice of tongue, pulse, and bottle." The medical benefit is administered entirely on the capitation system. A draft Bill of a National Health Insurance Act was introduced into Parliament three years ago, but the changes it proposed were too far-reaching, and it was accordingly shelved. When this Bill was under discussion in medical circles a capitation fee of 7*s.* was proposed, in the first instance as a minimum, and finally as a maximum. At present the average fee paid by the sick-clubs in Holland amounts to about 5*s.* per head. The following table gives the itemised expenditure in 1922 of two of the largest Dutch sick-clubs, each comprising about 100,000 members. The one functions for the labouring classes of Amsterdam, the other for the miners in Limburg.

Money Disbursed per Head for Each Member of the Club.

Items.	Limburg.			Amsterdam.	
	s.	d.		s.	d.
Capitation fee, general practitioners ..	4	1	....	5	5
Medical specialist's services	1	2	....	1	2
Dentist's service	–	3	....	–	5
Various specialist services (e.g., X rays) ..	1	0	....	0	4
Capitation fee, dispensing chemists ..	2	10	....	3	3
Cost price medicines and surgical appliances	1	1	....	2	10
Costs of nursing in hospital	10	10	....	12	0
Transport cost of patients	0	3	....	0	1
Contribution to district nursing	0	2	....	—	
Fees to midwives	0	10	....	0	6
Costs of administration	1	0	....	1	8
Total	23	6	....	27	8

A study of the above table will show that the Dutch doctor has some cause to envy his English confrère in the matter of capitation fee.

Sodoku (Rat-bite Disease) in Holland.

Sodoku was first described by Miyake, and recent cases of this remarkable disease merit description, especially where they occur in countries in which the condition had not hitherto been observed. Altogether, six cases have now been described in Dutch literature (two in van Lookeren Campagne's dissertation, one by Hymans van den Bergh, one by Berckel, one by Cornelia de Lauge and L. K. Wolff, and now one by van Dijk). The earliest Dutch case is that of a man of 71 years, who has now been suffering from this disease for 20 years and who was diagnosed by Dr. Guldenarm after reading Miyake's publications. The latest case was recently described in the *Genees-kundige Gids* (the *Medical Guide*) by van Dijk (Rotterdam). A child became ill 14 days after it had been bitten during sleep by a rat. The bite was situated at the corner of the left eyelid, where two pairs of holes the size of a pin's head—caused by the rat-bite—were to be seen. In a fortnight's time an extensive red and hard œdematous infiltration round it extended to above the eyelid. In the throat region a little gland of the size of a bean could be felt, which was painful on pressure. There was no exanthema, temperature 39·9° C., pulse 140, leucocytosis (W.B.C.'s 15,000; polynuclear leucocytes, 85 per cent.; no eosinophilia). A little albumin was present in the urine, no sugar, much urobilin, Wassermann reaction negative. The fever fell slowly to normal in six days, to be followed by another attack (recurrent type). Each attack of fever was accompanied by exacerbation of local symptoms. Salvarsan was not without effect in this case, but it took three months before the patient was completely cured. The fact that the spirochæte of the sodoku type was not found was disappointing, but nevertheless, in this case the clinical diagnosis was convincing.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Suggestions for Organised Research.

A CONFERENCE of medical men from almost all parts of India was recently held in Calcutta to consider how research in diseases could be made more effective. Among the recommendations made is one for the appointment of an impartial committee of medical men selected from among the leading surgeons and physicians in the United Kingdom to suggest methods by which research work throughout India may be coördinated to the best advantage. It was felt that if such a committee were appointed in India, it would be difficult to avoid the influence of local prejudices. There is at present little coördination between the workers in the different Indian provinces engaged in studying causation and methods of checking or eradicating disease, and the labours of workers in one province are not available for guidance to workers in another.

Pasteur Institute for Calcutta.

India already possesses three Pasteur Institutes for the treatment of hydrophobia. These are all situated in the hills, at Kasauli (near Simla), at Shillong, in Assam, and at Coonoor, in Southern India. As, however, experiments of recent years have shown that the vaccine used in the treatment of hydrophobia can be kept in the Indian plains without any danger of deterioration if sufficient care is taken, a proposal is shortly to be presented to the Government of Bengal to establish a Pasteur Institute also at Calcutta in connexion with the Calcutta School of Tropical Medicine. Experts who have examined the proposal are of the opinion that there is no reason why the vaccine should not be manufactured in Calcutta. The technical processes and the maintenance of a small staff under the charge of a medical expert are not expected to cost more than what the local government pays as its contribution towards the maintenance of the Pasteur Institute at Shillong. The establishment of an institute in Calcutta will not only prove more economical to the Bengal Government, but it will also mean a considerable saving in time and money to the sufferers who have now to spend large sums of money in railway fares and for expenses in Shillong during the fortnight's stay while undergoing treatment. The mercantile community in Calcutta, it is understood, will strongly support the proposal.

BRITISH PROVIDENT ASSOCIATION FOR HOSPITAL AND ADDITIONAL SERVICES.

Sir Alan Anderson presided over a dinner at the Savoy Hotel on Dec. 17th for the purpose of making the objects of the Association more generally known. The Chairman was supported by other members of the Executive Council—namely, Dr. J. F. Gordon Dill, Captain J. M. Gordon Dill, Mr. W. McAdam Eccles, and the Hon. Sir Arthur Stanley. Lord Dawson was unable to be present.

The guests included Dr. H. B. Brackenbury, Mr. L. G. Brock, Mr. J. Courtney Buchanan, Dr. C. Buttar, Major Crawley, Mr. Ward Cook, Dr. Alfred Cox, Mr. T. Denman, Mr. F. B. Elliott, Sir William Hale-White, Mr. N. Bishop Harman, Sir Thomas Horder, Sir Robert Kindersley, Sir Walter Lawrence, Mr. H. Lesser, Colonel Levita, Mr. Cecil Lubbock, Sir Edward Marshall-Hall, Mr. R. Holland Martin, Dr. E. C. Morland, Mr. E. W. Morris, Sir Thomas Neill, the Hon. Cyril Ponsonby, Mr. J. F. P. Rawlinson, M.P., Lord Riddell, Lord Somerleyton, Mr. H. S. Souttar, Mr. H. J. Waring, Major Wernher, Dr. R. McNair Wilson, and the Representative of THE LANCET.

Mr. E. W. Morris, in proposing The Association, said that it would benefit the voluntary hospitals, the public, and the general practitioner. Voluntary hospitals originally founded as shelters for the sick poor had now become armouries for fighting disease, and the cost had crept up to £5 a week per bed. The new departments which had constantly to be added were not earning departments, and the hospitals had only four alternatives. They could go back to the £2 per bed standard by cutting off the new departments and reducing the nursing; they could close beds; they could be nationalised; or prospective patients could be asked to contribute small amounts when well to cover in whole or in part the cost of their treatment when ill. For the manual worker there had been founded a Hospital Saving Association which helped groups with an average health-rate to obtain definite hospital services. The British Provident Association was a similar institution intended to benefit the "black-coated poor," who, as a rule, had not been considered eligible for hospitals. Under the scheme of this Association the subscription varied from £1 1*s.* per annum for a single person to £1 11*s.* 6*d.* for a married couple and £2 2*s.* for a family. On the recommendation of the patient's own private doctor he would obtain the advantages of hospital research, and of special treatment such as massage, and he would be admitted to hospital on the recommendation of the consultant whom the general practitioner had called in. The Association would pay £3 3*s.* for a consultation and £4 per week to the hospital towards the patient's cost, or a similar amount to a selected nursing-home. Contributions would be made for surgical appliances, dental treatment, and dentures. Should home nursing be required, 1*s.* 6*d.* a visit would be paid, while radium treatment and an ambulance service were also available. The scheme would enable the general practitioner, especially in country districts, to fight disease with modern weapons.

Sir Alan Anderson, in reply, said the problem was a simple one. The hospitals were a great health factory and as they extended their expenses increased. There was an immense mass of people getting good wages who wanted to be kept in health and yet preserve their spirit of independence. The British Provident Association was really an assurance association to help these people. It was desired to secure the support of large city firms who would introduce the scheme to their staffs and would also take a share of the expenses, following the example of Sheffield, where he was told 96 per cent. of the large firms supported the Hospital Saving Association and paid a third of the full hospital cost to their men.

Sir Arthur Stanley, in proposing The Guests, paid a tribute to Dr. Gordon Gill for his initiative and ability. Lord Riddell, Sir Edward Marshall-Hall, and Mr. J. F. P. Rawlinson, M.P., replied.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. J. H. L. Page is placed on ret. list.

J. Wolstencroft and T. C. H. Neil to be Surg. Lts.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Majs. to be Lt.-Cols: C. G. Thomson, vice Lt.-Col. A. L. Scott, ret. pay; Bt. Lt.-Col. A. McMunn, vice Lt.-Col. E. B. Knox, ret. pay.

Capt. F. P. Freeman retires, receiving a gratuity.

The undermentioned temp. Capts. relinquish their commns., and retain the rank of Capt.: E. A. Tozer and R. W. Shaw.

Capt. E. G. Foley retires, receiving a gratuity.

The undermentioned temp. Capts. relinquish their commns.: W. L. Hay, and is granted the rank of Maj.; J. A. Marsden, and retains the rank of Capt.

ROYAL AIR FORCE.

Flight Lt. (hon. Squadron Leader) J. N. MacDonald is granted the acting rank of Squadron Leader whilst so employed. Flight Lt. J. W. Harper is transferred to the Reserve Class D 2.

Maj. C. M. Rigby, R.A.M.C., and Capt. H. D. C. Rankin, R.A.M.C., have been appointed surgeons to H.E. the Commander-in-Chief in India.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The following table gives some of the principal health statistics for 1922 of a group of towns, differing much in circumstances and local government standing:—

Name of town.	Estimated population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Chester	41,190	20·9	13·8	1·2	1·3	3·6	72	184	9·2
Oldham	148,300	19·3	15·8	1·3	1·2	3·9	100	177	2·8
Great Yarmouth	56,700	19·3	12·9	1·3	1·2	3·0	84	118	1·8
Walsall	99,890	25·4	12·9	1·5	1·0	3·4	94	120	3·5
Darlington ..	66,710	22·6	14·1	1·4	1·0	3·4	94	143	3·3
Nuneaton ..	43,401	24·4	9·8	1·1	0·8	2·1	(78)*		5·6
Dover	40,390	20·5	11·4	1·0	1·3	2·6	52	68	3·6
Llanelly	37,800	20·6	11·3	1·2	1·1	2·8	79	154	2·6
Macclesfield ..	32,886	18·7	15·3	1·2	1·5	3·0	66	75	1·6
Gravesend ..	31,540	23·7	12·9	1·2	1·5	2·7	50	150	5·6
Chelmsford ..	20,990	17·9	11·2	0·8	1·5	2·0	38	182	0·0
Stretford ..	47,530	16·0	11·5	0·9	1·2	2·5	68	69	6·8
Weston-super-Mare	25,070	14·1	12·2	0·8	1·2	2·5	36	136	2·8

*Undivided infant mortality.

City of Chester.

Dr. D. Rennet reports that housing needs were not met by the 37 new houses provided, so that conditions are, if anything, worse than last year. The prospect is better at present, "but the limitations imposed by the labour and material available will not allow the rate of building to overtake the need for many years." Half of the pneumonia cases investigated were sleeping four or more in a room. There was only one notification of poliomyelitis and the experience of the orthopædic clinic is that this disease is overlooked during the feverish stage and only comes under notice when deformity is marked and cure long and difficult. Dr. Rennet deplores the fact that the Ministry have cut down by one-half the estimate for the cost of the treatment of non-pulmonary tuberculosis at the Chester Royal Infirmary and the Orthopædic Hospital, Oswestry. A sample of liquid eggs taken informally from a bulk supply was found to contain 82·6 gr. of boric acid per pound.

County Borough of Oldham.

Dr. J. B. Wilkinson says the principal item of the year's work has been preparatory to dealing with the larger of the two slum areas. Housing scarcity has prevented renovation and has enabled certain persons to profiteer by charging exorbitant rents for furnished rooms. Financial circumstances, owing to bad trade, have also prevented owners from undertaking improvements. The corporation completed 300 houses during the year and private builders 18. In response to a deputation of property owners, the Health Committee agreed to suspend the conversion of privies during the year. Dr. Wilkinson mentions that the permissible limit of black smoke from the chimneys of boiler furnaces is a liberal one, and that there were no prosecutions. He, however, tells us that the use of electricity for power is being extended, and he opines that this and the use of gas and smokeless fuel for heating "will enable future generations in Oldham to see the sun more frequently than the present one."

County Borough of Great Yarmouth.

Dr. A. N. Stevens draws special attention to the fact that 45 per cent. of the deaths of Yarmouth residents occurred at ages over 65 and 23 per cent. at ages over 75. All the dwelling houses, except 24, are supplied from the company's mains with water obtained from Ormesby Broad and the River Bure and subjected to sand filtration. There are still 24 wells, many of these "without doubt liable to pollution at times, but unless the samples for analysis happen to be taken at one of those times they cannot be dealt with." One would have thought, however, that if the surroundings of a well showed it to be liable to pollution it would be possible to get it closed. The maternity and child welfare report shows that of over 1000 infants visited 75 per cent. were breast-fed at the fourth month. An unusually high proportion of the births in Yarmouth are attended by medical men, about two-thirds in 1922.

County Borough of Walsall.

Owing to the death of Dr. H. Shore, the report is submitted by Dr. James A. M. Clark, acting medical officer of health and tuberculosis officer, who issues a serious warning as to the large number of unvaccinated children in the borough. Dr. Clark draws attention to the marked increase in the death-rate from pulmonary tuberculosis. The increase was most marked among females in the age-group 25–35 and also occurred amongst males in the age-group 35–45. Dr. Clark thinks the increase is due to the trade depression. Colloidal calcium has been tried extensively and appears to have given good results in children and in early cases in adults, but no very definite deductions can be drawn.

County Borough of Darlington.

Dr. S. G. Mostyn tells us that there is still great need for new houses, though private enterprise is beginning to supply the need. The work of the V.D. clinic has been greatly improved by the appointment in May of Dr. W. H. Brodie as a full-time officer. Dr. Brodie gives four days a week to this work and the remainder of his time to the school medical service. Six centres were opened during the year for the provision of free meals for school children; 295 children attended and 53,438 meals were supplied. The diet was approved by the school medical officer and the head of the domestic subjects centre. The school dentists ask for facilities for the administration of general anæsthetics and also suggest that they might give a lecture on the teeth, with the mothers present, in each school once a year.

Borough of Nuneaton.

Dr. K. E. Tapper submits very complete reports on the public health and school medical services, which, it is to be hoped, many of the residents will read. Situated on the Warwickshire coalfields, Nuneaton's chief industry is coal, textile industries coming next in importance, and providing female employment. There are, says Dr. Tapper, good provisions against distress in time of unemployment: a good water-supply (the new supply from Thornton reservoir near Leicester is nearing completion), good sewerage, an atmosphere free from gross smoke pollution, and no slums. Many of the births take place under adverse circumstances, and 44 of the 83 infant deaths occurred in the first four weeks of life. A maternity home and ante-natal clinic are needed. Midwives attend 94 per cent. of the births and are being asked, in return for a small fee, to do some ante-natal work. Dr. Tapper would like to see the control of the midwives under the authority responsible for child welfare. Amongst other needs mentioned are the conversion of privies (when the new water-supply is completed), the provision of a V.D. clinic in Nuneaton, and the extension of the school dental service (at present attention is almost restricted to the temporary teeth). Dr. Tapper has a good deal to say about personal hygiene, and instances the need for the education of the public in the right choice of food and the fact that some of the new council houses are suffering from indifferent tenants.

Borough of Dover.

Dr. A. B. McMaster refers to the high case-mortality from diphtheria. Five of the seven deaths were those of children admitted to hospital after the third day of the disease and some of these lives might have been saved by the use of antitoxin at an earlier stage of the disease. There is insufficient provision both for advanced and early cases of pulmonary tuberculosis, and the under-nourished pre-tuberculous child is an urgent problem. Owing to the continuance of unemployment there was a greater call on the milk scheme for the necessitous, 353 individuals being assisted, as compared with 294 in 1921. This assistance was, however, valuable in keeping down infant mortality.

Borough of Llanelly.

Dr. Laurence W. Pole reports that considerable improvements are being made in the milk-supply. The health committee have visited every cowshed and dairy in the town, and a most unsatisfactory state of affairs was found. Dr. Pole also comments unfavourably on the milk shops and methods of distribution, but anticipates that the report for 1923 will record a great improvement as the result of the operation of the Milk Act of 1922. Scavenging arrangements leave much to be desired. The regular removal of house refuse has been interfered with by the removal of trade refuse. Back lanes are universal, and it is a custom of old standing for householders to deposit their refuse in them. Strenuous action is needed to stop this objectionable practice. The number of houses now completed under the Government-assisted scheme is 462, but Dr. Pole estimates that 1000 more are needed to replace old property and deal with overcrowding. The need will be even greater when trade is normal. The work of the maternity and child welfare and school clinics has been hampered by unsatisfactory premises, but this will be remedied by the removal of both to specially adapted accommodation at the old town hall. Lessened unemployment has meant less call on the free milk scheme. A large number of school-children suffer from malnutrition and much of this is due, Dr. Pole thinks, to the wrong choice of food and the inadequate use of milk. Nothing is done for the children's teeth and the appointment of a school dentist is a very urgent need.

Borough of Macclesfield.

Dr. J. Hedley Marsh says the problem of housing gains yearly in importance and urgency. Wages are not high in Macclesfield, and Dr. Marsh would like to see houses provided, in rows if necessary, at a rental of 4*s*. or 5*s*. a week all included. "Until this is done the house shortage will continue," he says, "and, in trying to provide the ideal, we shall perpetuate the slums." Maternity and child welfare work has hitherto been chiefly in the hands of the voluntary workers of the Public Health Society with their headquarters at Hurdsfield House, and we gather from the report that the town council have just appointed their first two health visitors, who hold the dual qualifications of trained nurse and midwife. A considerable portion of the report is devoted to detailed bacterial analyses of the water-supply. The principal gathering ground of the town's water is in the uplands, beyond Langley, and is in some danger of pollution by farms. There is also a private supply with two small sand filters for houses in Hurdsfield-road, which Dr. Marsh would like to see abolished. The analyses refer to both and are put on record to let the committees concerned know the facts and to establish bacterial standards for comparison in future years. Dr. Marsh thinks the present pollution with intestinal bacteria may be eliminated by the acquisition of farms on the gathering grounds.

Borough of Gravesend.

Dr. C. D. Outred tells us that there is no provision for advanced tuberculosis and suggests that the town council might combine with adjoining districts to make such provision. A motor ambulance is also wanted. The question of overflowing cesspools has caused much expense and trouble. The corporation took the unusual course of deepening the cesspools at their own cost. The total cost of deepening 147 cesspools was £914. The previous cost of emptying these cesspools was £3880, and it is estimated that £2966 has been saved in the first year by the deepening operations. Twenty-two loads of chalk were removed at a cost of about £13 from one cesspool which cost £341 to empty in the previous 12 months, and it is possible that this cesspool will not require emptying for two or three years. The 96 houses erected by the corporation on the King's farm estate are all occupied and permission to sublet has been granted in 32 cases. Private enterprise has only erected six houses, and Dr. Outred thinks arrangements should be made with builders to erect 250 more houses on the corporation estate, to be let at a moderate rental. In the school report Dr. Outred refers at some length to the opposition of parents to minor operations and even to conservative dentistry. He hopes that the teachers may be able to give much assistance in wearing down this opposition.

Borough of Chelmsford.

Dr. Richard H. Vercoe submits the report for 1922, though Dr. William J. Cox was medical officer for the first six months and Dr. J. F. MacDonald acting medical officer for the second six months. The water-supply has to be cut off for part of the day in the summer months and the corporation is promoting a bill to obtain an additional supply from the Chelmer at Sandford Mill. Considerable progress has been made with the housing scheme, 176 houses having been completed during the year. In addition to this, private enterprise contributed 29 houses. In Chelmsford there are many houses in a bad state of repair. Dr. Vercoe mentions 130 as only fit for demolition, and 300 more which can only be kept habitable by constant repairs.

Urban District of Stretford.

Dr. William J. Heslop presents his thirty-sixth and farewell report and gives an interesting contrast between the conditions prevailing at the time of his appointment and now. The general death-rate has declined from about 15 to 11, the infant mortality-rate from about 160 to about 60, and the population has increased from 21,000 to 47,530. In 1887 there were many cellar dwellings and back-to-back houses, and the conveniences were mostly privy middens. All these have disappeared and many other sanitary improvements have been carried out.

Urban District of Weston-super-Mare.

Dr. John Wallace reports that there has been no unusual or excessive mortality during the year and that the infant mortality-rate was the lowest ever recorded. The new houses erected during the year numbered 59, 18 being municipal houses. The sanitary inspector states that apart from municipal houses there is no increase of accommodation for the working classes, and that owing to shortage of such houses proper renovation cannot be carried out and overcrowding cannot be dealt with. The abattoirs belonging to the council are the only slaughter-houses in the district and are in first-class condition. Humane killers are used for cattle and pigs.

PENALTY FOR IMPROPER CHARGES TO PANEL PATIENTS.—The result of the recent inquiry by the Ministry of Health at Tottington, Lancashire, respecting alleged improper charging of fees from insured persons by two local panel doctors was communicated to the Bury Insurance Committee on Dec. 11th. The communication states that the Ministry has decided that £1000 must be withheld from the supplementary grant payable to the Insurance Committee (Lancashire) in respect of medical benefit, and that this sum, together with the costs incurred by the committee in connexion with the inquiry, should be recovered from the practitioners by reduction from their remuneration or otherwise; arrangements should accordingly be made by the committee to recover the amount by instalments spread over a suitable period. The committee should also take steps to secure that a refund is made by the practitioners in all cases in which it is established to the satisfaction of the committee that fees have been irregularly charged by them.

Correspondence.

"Audi alteram partem."

ON SOME USES OF DIGITALIS.

To the Editor of THE LANCET.

SIR,—I am anxious to comment as briefly as possible on certain statements which Dr. G. A. Sutherland makes in THE LANCET of Dec. 8th under the above heading. Dr. Sutherland opens with a confession of unbelief; he says: "Claims are made that the contractile power of the heart muscle can be improved and increased by the direct action of drugs," and a few lines further he proceeds, "I am one of those humble unbelievers who has hitherto failed to find any drug which will act directly and beneficially on the cardiac power of contraction." It is a tremendous and sweeping pronouncement, and, as a firm believer in the power thus called in question, I would, in equal humility, make my profession of faith on the following grounds:—

In the first place, anatomy shows the heart to be richly supplied with nerve fibres, cerebrospinal and sympathetic, which bring it into touch with every part of the body. What do those fibres convey? Stimuli. What is asked of the heart in response? Contractile power, in quantity greater or less according to the circumstances which condition life; in other words, the power-output has to be adapted to the needs of the occasion. In physiologic life, then, stimuli play a recognised part, influencing directly the muscle fibres of the heart, now restraining, now reinforcing, and now regulating the contractions in their sequence. Let us now introduce the drug to the body; it is, ex hypothesi, possessed of properties capable of influencing the tissues; otherwise it would be inert and not a drug. Let us suppose an attack of fainting, the face is blanched, the pulse cannot be felt, and that we apply strong ammonia, secundum artem, to the nostrils. The colour returns to the face, the pulse to the wrist, the patient revives. In this case the powerful stimulus of the ammonia has been projected from the mucous membrane of the nasal cavities, viâ the central nervous system, upon the heart, and the heart has responded with a crescendo of systoles: it is a sequence as direct as the firing of a train of gunpowder issuing in the terminal explosion. A dose of brandy or of ammonia by the mouth, before the faintness had advanced quite so far, would have given like results, but in that case the projection of a stimulus from the mucous membrane of the stomach would have been followed by stimulant effects after absorption into the blood-stream.

Imagine next a case of intense collapse, the result of snake-bite, and that, according to the method of Prof. G. B. Halford, we inject the dose of ammonia directly into a vein; the success claimed for this method is most simply explained as a direct action upon the heart muscle as the drug passes through the chambers of the heart first, and subsequently is circulated through the coronary vessels. Advancing the argument a step further, let us perfuse the excised heart of a frog, by means of a Roy-apparatus, with an artificial blood, recording the systoles upon a revolving drum, and then introduce a suitable dose of an ammonium salt into the circulation; almost at once the stimulant effect is observed in the increased height and breadth of the series of systoles which now are traced. In this case the action could not be more direct, for all question of nerve influence is put aside, and if the ligature securing the heart to the perfusion cannula be properly placed in the auriculo-ventricular sulcus there remains only the ventricular walls *to be influenced*, and the medicated blood, within the ventricle, *to influence* them—the action could not be more direct nor the effect more unmistakable. To complete the evidence I would refer to Dr. Carl Bodon's paper, in THE LANCET of March 24th, on "The Intracardiac Injection of Adrenalin." In the directness of this method it comes nearest to the foregoing experiment, with this difference, of course, that the heart is here in situ with all its communications intact. The adrenalin was injected directly into the right ventricle, and though the full portraiture of systemic death was present before the dose was administered (unconsciousness, cessation of respiration and heart's action, death-like pallor, widely dilated pupils with loss of corneal reflexes, and involuntary voiding of stools and urine), within a few seconds the heart beat reappeared, and in less than half a minute became regular and effective. In this case, the circulation being to all intents and purposes at a standstill, what else but direct action of the adrenalin upon the inner surface of the right ventricle, the walls of which still held somatic life, can explain the result? Dr. Bodon's paper is based upon a material of 90 cases of intracardiac injection.

I pass to another point which I can only deal with very briefly: it concerns the type of case for which digitalis is suitable, which we are told has *now* been achieved (p. 1222, the italics are mine). The type is that which is most commonly spoken of as auricular fibrillation, and we are told that on this subject the teaching of Mackenzie "is now universally accepted," and that he has shown "that the benefits to be obtained from digitalis are more strikingly seen and more hopefully expected in cases of auricular fibrillation associated with rheumatic disease of the heart than in any other condition." I think there will be none to dispute that this is par excellence the type of case for digitalis, but have we had to wait till *now* for this knowledge or were we well acquainted with the type of case, which indicated digitalis, 40–50 years ago? Did we not know the case characterised by heart failure with rapid irregular action of the heart, the irregularity being both in time and force and yielding a very striking and easily recognised pulse; its common association with valvular disease, and very particularly with mitral disease, regurgitant, obstructive, or both the one and the other; its tendency to develop dropsy more or less widespread, up to a condition of almost complete waterlogging of the whole body; the frequent history of rheumatic antecedents, either in the patient or in the family history? Were not such cases pointed to as of the type calculated to convince the most hardened sceptic as to the value of drugs (as Dr. Ringer used to teach) in their astonishing response to digitalis? Did not Dr. G. W. Balfour lay down in most careful terms the rules which should guide the dosage of digitalis in this type of case? True, we did not know the state of flickering asystole of the auricle which obtained, but we knew its outcome, the delirium cordis, which was present, and we knew how to treat it effectively. The term auricular fibrillation tells us nothing as to the nature of the disorder which follows upon it; the symptoms declare this and the symptom-group sums up the *dis*-order; and the symptom-group we knew.

It is not doing justice to the facts of the case or to the memory of those observers in the past, who in respect of the use of digitalis have deserved so well of us, to withhold the expression of our indebtedness.

I am, Sir, yours faithfully,

Dec. 11th, 1923. HARRINGTON SAINSBURY.

THE PREVENTION OF BILHARZIASIS.

To the Editor of THE LANCET.

SIR,—So far as the commoner carriers of *Schistosomum hœmatobium* and *S. mansoni* are concerned, complete drying of pools for a few days at a time, as recommended by Prof. R. T. Leiper, is undoubtedly the most effective means at our disposal for eradicating these fresh-water snails. In the intense heat of the tropics, where evaporation is great, the animals soon die in their dry shell. But the menace of the mollusc in the marsh remains, for I have shown that in the moist heat of the Natal coast *Isidora tropica* from the Free State can live in the shade on a dry shelf for 48 hours and become active again when returned to fresh water. Moreover, by means of its operculum, the common intermediary host of *Schistosomum japonicum* is able to resist drying, the enclosed animal remaining moist within its shell for several weeks and emitting numerous cercariæ, as shown by W. W. Cort, as soon as it is returned to fresh water. Although I have never found schistosomes in an operculated shell in South Africa, the majority of the cercariæ with which they are infested being encysting forms, I have recently isolated them from a new family of fresh-water snail, *Barnupia*, and this mollusc is better able to resist drying than the majority of non-operculated shells, because of its very close attachment to reeds, whereby it also withstands the rush of a flooded river. The presence of living fresh-water molluscs in the lagoons that are formed at the mouth of Natal rivers does not alter the fact that the vast majority of intermediary hosts are quickly destroyed by sea-water, and the occasional salinity of lagoon water helps to keep them from accumulating in places where they might otherwise tend to breed in considerable numbers.

I am, Sir, yours faithfully,
F. G. CAWSTON, M.D. Cantab.
West-street, Durban, Nov. 23rd, 1923.

THE MEDICAL EXAMINATION OF MOTOR DRIVERS.

To the Editor of THE LANCET.

SIR,—Is it not now desirable that drivers of taxi-cabs and motor vehicles should be examined medically with respect to their ability to safely perform their duties? The possibility of serious accidents through the physical incapacity or ailments of a taxi-cab driver must have occurred to most people who have ever thought about the subject. I was much impressed some time ago when consulted by a taxi-driver who presented marked symptoms of affection of the nervous system. He admitted that it was no longer safe for him to drive a motor vehicle. He had a definite history of syphilis, and after careful examination I came to the conclusion that he was suffering from early general paralysis. His list of collisions with pedestrians (some serious) was already a long one, and I urged him to discontinue his occupation at once. I never saw him again, but he was still driving a taxi-cab a considerable time after he consulted me. When we consider the accidents that might happen through the driver of a motor vehicle having an epileptic fit, or an attack of petit mal, angina pectoris, or syncope, or cerebral or other severe internal hæmorrhage over and above those that might result from defective sight or hearing, it is strange that medical examination has not been required long ago.

Accidents cannot be prevented so long as motor vehicles are allowed to rush along our streets and roads at their present speed, and the increasing mortality from motor accidents is the price we pay, without protest, for the pleasure of this rate of travelling. But pedestrians at least deserve some consideration and protection, and medical examination of all who drive motor vehicles would do a little to diminish the number of accidents; it would also be a warning to the motor drivers and serve to remind them of the dangerous weapon in their hands.

Personally, I have no interest in such examinations except as a pedestrian.

I am, Sir, yours faithfully,
Dec. 14th, 1923. R. T. WILLIAMSON.

⁂ At a recent inquest a London coroner pointed out very forcibly that under present conditions anyone of the scheduled age, though blind, epileptic, or physically defective, can obtain for 5*s.* a licence to drive a motor vehicle. Plainly this risky state of things must be considered when the law affecting motorists is revised. And time presses.—ED. L.

Obituary.

PROF. ROBERT TIGERSTEDT.

Robert Tigerstedt, whose death we have briefly announced, was born in 1853 at Helsingfors. A Finn both by birth and sentiment, Tigerstedt studied at his native university, in Stockholm and in Leipzig. In 1876 he was appointed assistant in the physiological laboratory at Helsingfors, and in 1886 he became professor of physiology at Stockholm. In 1900, when Finland was going through difficult times politically, his patriotism impelled him to return to Helsingfors, where he was appointed professor of physiology, and where he remained until his death. He was one of the many distinguished physiologists who were pupils of Carl Ludwig. Tigerstedt's scientific work, which is very extensive, falls into three main groups—namely, the physiology of muscle and nerve, the physiology of the circulation, and metabolism. Some of his papers on muscle and nerve were translated into English for the "Biological Memoirs on the Physiology of Muscle and Nerve and the Electrical Organ," edited by Burdon Sanderson. At one time he took much interest in the alcohol question from the abstinence point of view. His early researches were on stimulation of muscle through its nerve, but perhaps he received earliest recognition through his lectures on the circulation of the blood which contained much new and historical matter, including the fundamental and classical researches of Stannius, of Rostock, on the heart. To later readers in this country and America his "Text-book of Human Physiology," translated from the third German edition by Prof. J. R. Murlin, of New York, in 1906, is the work by which he is best known. In later years he carried out researches on respiration and metabolism, and contributed monographs to Nagel's "Physiology," to Oppenheimer's technical treatise, and to the "Comparative Physiology" of Winterstein. His "Lehrbuch der Physiologie des Kreislaufs" is well-known as an authoritative statement on the circulation of the blood, and a second edition is in process of appearing. A recipient of many honorary degrees, he was a member of the Scientific Academies of Helsingfors, Upsala, Stockholm, Copenhagen, and Christiania, and in his sixtieth year a bronze medal was struck in his honour. Tigerstedt has been editor of the "Skandinavisches Archiv für Physiologie" since 1898. The forty-third volume of these archives was dedicated to him as a memorial on his seventieth birthday by his friends and pupils. At the last Physiological Congress before the war, in 1913, it was decided to hold the next Congress in Paris with Tigerstedt as its president. His judgment and his knowledge of physiology were greatly esteemed by his colleagues in all countries, and as a man he was loved by a large circle of friends.

GEORGE PESTER CHAPPEL, M.D. CAMB.

ON Dec. 15th the death occurred, at his residence, Altrincham, Cheshire, of Dr. G. P. Chappel, aged 55, one of the best known medical practitioners in the district. Death was due to pneumonia, after only a few days' illness. Dr. Chappel was the son of the late Canon Chappel, of Camborne, Cornwall. After studying at Cambridge and the London Hospital, he graduated at Cambridge M.B., B.Ch. in 1892 and M.D. in 1896. He was for a time house physician and later house surgeon to the late Sir Frederick Treves at the London Hospital, afterwards he practised at Tottenham, and came to Altrincham about 15 years ago. There, in addition to carrying on the work of a large private practice, he was medical officer of health for Bowdon and hon. physician to the Altrincham General Hospital. During the war Dr. Chappel, as Major in the R.A.M.C. (T.), served in Egypt, and later had charge of a large military hospital in London.

SYDNEY STEPHENSON, M.B., C.M. EDIN., F.R.C.S. EDIN., D.O. OXF.

Sydney Harry Stephenson, who died at his residence in Welbeck-street, London, on Dec. 15th, aged 61, was son of the late Dr. Appleby Stephenson, and was educated privately at Nottingham High School, afterwards entering Epsom College. He studied medicine at Middlesex and St. Mary's Hospitals, and having qualified L.S.A., he graduated at Edinburgh University in 1884. In 1889 he obtained the Fellowship of the Royal College of Surgeons of Edinburgh. Devoting himself to the study of ophthalmology, he held successively the posts of ophthalmic surgeon to Queen Charlotte's Hospital, to the Evelina Hospital, to the King Edward Memorial Hospital, Ealing, and at the time of his death was consulting ophthalmic surgeon to the Queen's Hospital for Children.

Stephenson rendered a great service to the community by his work on trachoma. He was in charge for two years of the "ophthalmia" school at Norwood, established after a serious outbreak in the London schools during the summer of 1886. Here all the children found to have granular lids were segregated, their teaching being in the hands of a resident governess. Other experiments on similar lines were made in the following years. In 1890, after an outbreak of trachoma at the Metropolitan Poor-law Schools at Hanwell, an isolation block designed for 400 children was erected, and Stephenson's services were engaged to look after their ocular condition. The proportion of trachomatous children in the Hanwell schools gradually diminished from 33 per cent. in 1889 down to 0·6 per cent. in 1896. In the latter year Stephenson was asked by the Local Government Board to undertake an inspection of the whole number of children attending the metropolitan Poor-law schools, when he found 973, or 5·72 per cent., suffering from trachoma; his recommendation was adopted to house these children in a couple of hospital schools on the "cottage" or "small block" plan.

When the Oxford Ophthalmological Annual Congress was formed by the late R. W. Doyne in 1909 out of the Oxford ophthalmological meeting, Stephenson was unanimously elected as secretary. In that capacity, with Doyne as Master, he laid the foundation of the Congress well and truly, and when, some five years later, he succeeded Doyne in the office of Master, a post he held to the day of his death, he established himself at once as a great successor to the brilliant founder. Under his mastership the Congress grew in membership and popularity, and it must have been a matter of deep satisfaction to him that the last Congress in July of this year, at which he presided, was a record one in attendance and keenness. His older colleagues will remember him as one of the most frequent contributors to the discussions at the Ophthalmological Society (of which he was secretary, later vice-president) for some 30 years. He was also a member of the Société Française d'Ophtalmologie, an hon. member of the Midland Ophthalmological Society, and an hon. Fellow of the American Academy of Ophthalmology and Oto-Laryngology. He had an extraordinary capacity for work as was evidenced in the publication of some 14 volumes of the *Ophthalmoscope*. This latter journal afterwards became incorporated in the *British Journal of Ophthalmology*, of which Dr. Stephenson was one of the associated editors. He was the author of "Ophthalmic Nursing," which has gone through three editions; "Epidemic Ophthalmia: Its Symptoms, Diagnosis, and Management," published in 1895; "Eyestrain in Everyday Practice," published in 1913; and, with Mr. W. A. Brailey, he wrote the article on Diseases of the Iris and Ciliary Body in the "System of Diseases of the Eye," published in Philadelphia in 1897. He also contributed to the Encyclopædia Medica, and made translations of Dr. Feuer's "Die Beziehungen zwischen Zahn- und Augen-Affectionen," and of Dr. Darier's "Leçons de Thérapeutique Oculaire."

Although an able clinician, Dr. Stephenson's chief interest was in journalism. He wrote well and with great care. He spoke well, weighing his words with a view to their effect, and whether he showed cases or wrote papers, they were always finished products. His knowledge of men and an unusual memory for faces, combined with a genial bearing and energy, were invaluable assets to every society in which he played a part. In a scientific meeting he was in his element and thoroughly enjoyed himself, making others do the same. He was a man ever ready to help and to do so in a way so unobtrusive that it was often not until long after that the source of the help was realised. Stephenson's health was never good. For long partially crippled, his last years were quite incapacitated, but with amazing pluck he stuck to his work when others would have given in to overwhelming disability.

Dr. Stephenson married Jane Finch, daughter of Mr. J. H. Peck, J.P. for Southport and Wigan.

ROBERT WALMSLEY FISHER, M.D., B.CH., D.P.H. (R.U.I.)

BY the recent death of Dr. R. W. Fisher, Director of the Vaccine Institute, Belgaum, in his forty-ninth year, the Public Health Department of Bombay has lost one of its most indefatigable and devoted workers. Dr. Fisher, son of Mr. Thomas Pentland Fisher, was born at Ballymena, co. Antrim, Ireland, in 1874. He began his medical studies at the Royal University of Ireland, and graduated M.B., B.Ch. in 1901. After holding appointments as resident medical officer of fever and small-pox hospitals in Belfast, followed by a short experience of general practice, he offered his services to the Secretary of State for plague work in India. He was allocated to the Punjab, and served in the Punjab Government for about four years. On his return to Ireland he took the D.P.H. (R.U.I.) in 1909. In 1911 the Secretary of State sanctioned the creation of an appointment of director of the Vaccine Institute, Belgaum, which was offered to Fisher in recognition of his services. During the war Fisher acted, in addition, as civil surgeon to Belgaum, and as medical officer in charge of the hostile women's camp, Belgaum. In 1921 his thesis on the History and Work of the Vaccine Institute, Belgaum, for the M.D. Belfast was awarded a gold medal, and was published in the *Indian Journal of Medical Research* (vol. viii., No. 2, 1920). As a tribute to his enthusiastic and painstaking labours for the Vaccine Institute he was awarded the Kaisar-i-Hind medal in June, 1923. In his various spheres of work Fisher was genuinely admired, not alone for his ability, but as a man of generous heart and disposition, ever ready to promote and foster good fellowship and to spend himself in the interests of others. He leaves a widow, a daughter, and two sons, the elder of whom has just entered on his studies in medicine at the Royal University of Ireland.

PRESENTATION TO PROF. ALEXIS THOMSON.—In the surgery class-room of the Edinburgh University on Dec. 12th an antique silver basin, with inscription, was presented to Prof. Alexis Thomson, who has been forced through illness to give up the chair of Surgery, by the members of his last class, and others of his students who cared to contribute, as a token of esteem and regard.

Medical News.

University of Oxford.—In a Congregation held on Dec. 15th the following degrees were conferred :—

D.M.—M. E. Shaw, New College.

B.M., B.Ch.—O. D. Ballinger, University ; D. T. Barnes, St. John's ; A. M. Cooke, Jesus ; R. S. Creed, Trinity and Magdalen ; Alice E. Harding, Oxford Home Students ; L. N. Jackson, Balliol ; J. A. Macfadyen, Brasenose ; G. F. L. Mitcheson, Christ Church ; T. L. Ormerod, Queen's ; T. S. Townsend, Jesus ; and H. F. Turney, Magdalen.

The following candidates passed the Final Examination for the degrees of B.M., B.Ch., in the subjects named :—

Materia Medica and Pharmacology.—C. P. Blacker, Balliol ; W. H. Bradley, Christ Church ; H. A. Byworth, Oriel ; J. N. C. Ford, Hertford ; A. T. Fripp, Christ Church ; A. H. Gale, Trinity ; C. L. Harding, Christ Church ; G. G. Hill, Hertford ; H. O. Hopkins and T. C. Hunt, Magdalen ; J. S. Jerome, Christ Church ; M. J. W. Minshull, Keble ; J. S. Rake, Brasenose ; C. E. Roberts, Jesus ; J. de la Mare Savage, Wadham ; J. G. S. Thomas, and O. R. Tisdall, Hertford ; A. L. Wilkinson, Trinity ; K. G. Norton, St. Hugh's ; and J. M. Vaughan, Somerville.

Pathology.—L. J. Barford, Queen's ; C. P. Blacker, Balliol ; R. B. Bourdillon, University ; W. H. Bradley, Christ Church ; C. S. Broadbent, Queen's ; R. V. Facey, Brasenose ; L. N. Jackson, Balliol ; T. L. Ormerod, Queen's ; R. A. Walsh, Magdalen ; O. B. Buckley, Somerville ; and E. J. Cockram, Society of Oxford Home Students.

Forensic Medicine and Public Health.—G. R. P. Aldred-Brown, Keble ; W. H. Bradley and R. E. D. Cargill, Christ Church ; A. D. Dyson, Corpus Christi ; C. L. Elgood, Balliol ; D. R. Gawler, University ; C. A. H. Green, Trinity ; L. N. Jackson, Balliol ; W. J. E. Lupton, New ; H. A. Robertson, Balliol ; V. P. Robinson, St. John's ; B. G. Scholefield and I. M. Sidley, Christ Church ; B. E. Thompson, Brasenose ; G. I. Wilson, Queen's ; and A. E. B. Harding, Society of Oxford Home Students.

Medicine, Surgery, Midwifery.—O. D. Ballinger, University ; D. T. Barnes, St. John's ; A. M. Cooke, Jesus ; R. S. Creed, Magdalen ; L. N. Jackson, Balliol ; J. A. Macfadyen, Brasenose ; G. F. L. Mitcheson, Christ Church ; H. A. Robertson, Balliol ; B. G. Scholefield, Christ Church ; E. B. Strauss, New ; T. S. Townsend, Jesus ; H. F. Turney, Magdalen ; A. E. B. Harding, Society of Oxford Home Students ; and J. Orr-Ewing, Lady Margaret Hall.

Royal College of Surgeons of England.—At a meeting of the Council of the College on Dec. 13th, Sir John Bland-Sutton, President, in the chair, the secretary reported the death on Nov. 8th, at the age of 73, of Mr. William Harrison Cripps, past Vice-President and member of the Council ; and also the death on Dec. 7th, at the age of 70, of Sir Frederick Treves, Bt., past member of the Council and of the Court of Examiners. A vote of condolence was passed in each instance. Diplomas of Fellow were conferred upon the following 25 candidates who have passed the requisite examinations and complied with the by-laws :—

Douglas J. Batterham, Cambridge and St. Bart.'s ; John M. Bickerton, Cambridge and King's Coll. ; Harold C. Brayshaw, Edinburgh and London ; Leonard G. Brown, Oxford and London ; Calvert M. Carruthers, Kingston and London ; William D. Doherty, Guy's ; William C. Faull, St. Mary's ; Lionel R. Fifield, London ; William D. Hart, Otago and London ; Reginald W. P. Hosford, St. Bart.'s ; Michael V. Hurley, Cork and London ; S. Kadinsky, Westminster and Guy's ; Hugh B. Kent, Guy's ; John R. Lee, Melbourne and Middlesex ; Hugh J. McCurrich, St. Bart.'s ; S. M. Majumdar, Calcutta and St. Bart.'s ; William E. M. Mitchell, St. Bart.'s ; Thomas S. North, St. Mary's ; Norman A. M. Petersen, London ; Granville D. Robertson, St. Mary's ; William G. Rose, St. Mary's and St. Bart.'s ; Thomas C. Summers, London ; Clement P. Thomas, Westminster ; Dallas B. Walker, Otago and Edinburgh ; and Owen H. Williams, Edinburgh and Liverpool.

Licences in Dental Surgery were conferred upon the following 119 candidates who have passed the requisite examinations and have complied with the by-laws :—

F. G. Alford, Royal Dental ; H. W. Allso, Birmingham ; Katherine M. Ambler, Royal Dental ; S. Bain, Sheffield ; G. A. Ballantyne, London ; R. C. Ballard, Guy's ; E. T. Barlow, Liverpool ; O. J. Barrable, Royal Dental ; T. S. L. Barritt, Guy's ; M. Batey and M. L. Bendi, Royal Dental ; T. B. Berry, Guy's ; A. D. Blackwell and W. M. Bowler, Royal Dental ; W. S. Brittan, Guy's ; C. F. S. Brooks, Manchester ; J. K. R. Bryce, Univ. Coll. ; L. S. Carter, Guy's ; G. R. Catchpole, London ; H. F. Caudwell, Royal Dental ; E. F. Cook, Birmingham ; W. O. Cooksey, D. H. Couch, and I. G. Coutts, Guy's ; E. R. Cozens, London ; Florence E. Crampton, Royal Dental ; D. J. Dalton, Durham ; Brenda M. Daniels, Royal Dental ; W. W. F. Dawe, Univ. Coll. ; H. T. Deubler, Royal Dental ; R. C. De Waal, London ; J. A. Dodds, Manchester ; F. S. Duck, London ; H. B. Dumughn, Manchester ; A. H. Dyke, Guy's ; C. D. W. Eddowes, London ; R. W. Ellis and Doris M. Elvy, Royal Dental ; C. H. A. Fido and E. H. Fouraker, Guy's ; E. W. F. Fowler, Royal Dental ; L. A. Freeman, London ; S. G. French, Guy's ; N. H. Galloway, Birmingham ; H. C. Goadby, Edith A. Gower, N. J. Graham, Helen M. Greatorex, H. R. Griffin, W. D. Guyler, and H. W. Haggett, Royal Dental ; L. F. Handford, Guy's ; F. E. Harrison, Liverpool ; O. J. Henry, Leeds ; C. N. Hilton, London ; C. E. H. Ockley, Royal Dental ; W. V. A. Hodges, Guy's ; D. S. Hotz, Royal Dental ; F. B. Howarth, Manchester ; E. T. Hughes, London ; F. Innes, Durham ; P. Johnson, London ; L. H. Jones, Guy's ; F. Kogan, Royal Dental ; G. A. Lawson-Brown, Guy's ; E. H. Lewis, Sheffield ; C. D. Lingwood, Guy's ; E. A. Lister, Univ. Coll. ; J. E. Lloyd, Guy's ; G. W. Lund, P. Lunt, and A. P. Marais, Royal Dental ; R. S. Matthews, M. W. Meskin, and H. Metheringham, Guy's ; L. E. Montgomery, Royal Dental ; A. L. Morgan, Bristol ; A. E. Nelson, Guy's ; W. R. Norris, London ; L. Nurick and W. Orsmond, Guy's ; S. H. Partridge and Muriel C. Patching, Royal Dental ; E. Z. C. Pearson, Guy's ; H. D. Peckover, Royal Dental ; F. O. E. Peres, Univ. Coll. ; C. R. Philip, Royal Dental ; E. V. Potts, Guy's ; H. Prior and R. H. Reece, Royal Dental ; E. R. Rich, Univ. Coll. ; P. W. Rogers, London ; R. A. Roth and C. H. Rubra, Royal Dental ; N. H. Saint, Guy's ; O. Samson, Royal Dental ; E. H. L. Sander and S. S. Sanderson, Guy's ; R. Schlimmer, Guy's ; J. W. Schofield, Royal Dental ; G. P. Stanfield, Birmingham ; W. H. P. Stone, Univ. Coll. ; G. S. Sturgess, G. H. Tapper, G. E. Taylor, and E. D. Thomas, Royal Dental ; L. J. Threlfall, London ; T. Vallange, G. J. van Schalkwyk, and C. A. Wakeford, Guy's ; A. E. Ward and A. W. T. Ward, Univ. Coll. ; E. M. Ward, Birmingham ; V. C. Warr, Guy's ; E. C. E. Williams, Birmingham ; H. Williamson, Royal Dental ; L. C. Willis, Guy's ; F. G. B. Wilson, Durham ; and J. M. Wolfe, Royal Dental.

Diplomas of M.R.C.S. were conferred upon the following :—

Miriam P. de Villiers, Royal Free ; and H. C. Suri, Punjab and London.

A report was read from the Board of Examiners in Dental Surgery announcing, among other things, that the Board had considered an application from King's College Hospital Medical School for the recognition of a School of Dental Surgery in connexion with that medical school which had recently been established ; the Board recommended the Council to add King's College Hospital Dental Department to the list of dental schools recognised for the course of study for the licence in dental surgery. This report was adopted.—Mr. V. Warren Low was re-elected a Member of the Court of Examiners.—Mr. W. G. Spencer was re-elected a Member of the Central Council for district nursing in London for three years from Jan. 1st, 1924.—Sir Berkeley Moynihan was reappointed a Member of the Court of the University of Birmingham for three years from Jan. 1st, 1924.

University of London : *University College.*—Six scholarships and exhibitions are available for award to students of the Faculty of Medical Sciences entering the College in October, 1924. The value of these scholarships and exhibitions is not less than £40 a year each, tenable in some cases for three years, and, in the case of the Bucknill Scholarship, for the whole period of medical education. The value of any of these scholarships or exhibitions may be increased by the grant of a supplementary bursary if the circumstances of the scholar or exhibitioner make such a grant necessary.

University of Liverpool.—At examinations held recently the following candidates were successful :—

Degree of M.D.

J. Flanagan and Annie A. Muir.

Degrees of M.B. and Ch.B. (Honours).

Class II.—B. Ordman (distinction in Surgery).

Final Examination for Degrees of M.B. and Ch.B.

Part III.—R. L. Blair, I. Casdan, M. Cohen, N. B. Cooke, J. C. Drummond, Kathleen Edgecombe, C. K. D. Edwards, D. Flenley, E. J. Foley, S. C. Goldstone, A. B. Griffiths, R. C. Gubbins, A. J. Hawe, C. W. Healey, F. H. Jones, W. F. Jones, A. Kefalas, T. S. King, Ruth Lunt, G. H. Mann, J. I. Noble, D. U. Owen, Eleanor M. P. Pearson, R. A. Roberts, G. Sanders, J. R. A. Tallack, Elizabeth M. Theron, J. G. Thomas, R. W. Thomas, H. Walker, and A. E. Wall.

Part I.—*A. T. Ashcroft, *C. A. Birch, J. M. Brodrick, N. Cresswell, H. L. Cullen, P. V. Dillon, L. Earlam, Sybil O. Edwards, W. Emdin, C. J. S. Garton, I. Gordon, A. J. Goss, Frances M. Greenhalgh, Catherine E. I. Greenshields, Gwyneth Griffith, C. A. Harris, Beryl M. Hawthorn, J. C. Heal, R. E. Horsfall, F. Hughes, Elvy I. Johnstone, S. M. Katz, B. D. Knoblauch, B. Krikler, Sarah Leigh, L. J. A. Loewenthal, T. R. E. Longton, *G. McNichol, E. Martinez, K. N. Mawson, J. Morrissey, Winifred A. Nicholson, G. W. Paton, H. Peaston, J. W. Reid, Kathleen M. Robertson-Dunn, *Miriam Roskin, J. C. Ross, F. B. Shevlin, Ruth Simpson, Margaret E. Thomas, R. S. Turner, C. E. Unsworth, J. Unsworth, Rosalind Vacher, and F. W. Yates.

* Distinction in Pathology.

Part II.—C. P. Allen, A. Ashworth, C. Baxter, T. Bellis, D. Cohen, H. A. Cole, E. Cook, J. D. Craig, O. Dawood, H. Duff, J. H. Gilchrist, L. F. Henry, T. S. L. Jones, Rebecca Katz, A. L. Kerr, B. D. Knoblauch, B. Krikler, E. Martinez, J. R. Mitchell, and R. S. Turner.

Diploma in Tropical Medicine.

B. Abelman, Winifred M. Edghill, N. D. Fraser, R. Lee, E. R. Peirce, C. B. B. Reid, A. E. Richmond, and J. B. Steven.

Small-pox in England and Wales.—A further increase in small-pox has occurred. Sixty cases were notified in England and Wales during the week ended Dec. 8th in the following sanitary areas: Cheshire 1 (Chester); Derbyshire 24 (Alfreton 1, Bolsover 5, Heanor 4, Blackwell R.D. 14); Gloucestershire 16 (East Dean R.D.); Northumberland 1 (Morpeth R.D.); Notts 14 (Hucknall 7, Kirkby-in-Ashfield 3, Basford R.D. 4); Yorks, W.R. 4 (Adwick-le-Street 3, Bentley-with-Arksey 1).

Remuneration of Insurance Practitioners.—The Court of Inquiry appointed by the Minister of Health and the Secretary for Scotland to consider the question of the remuneration of Insurance practitioners held a private meeting on Dec. 13th at the Ministry of Health, and considered questions of procedure. Meetings for the purpose of hearing evidence will take place on Jan. 4th, 1924, at 10.30 A.M., and on Jan. 7th and 8th, at the Ministry of Health, Whitehall, S.W. 1. These meetings will be open to the public and the press.

Manchester Hospitals.—At the annual meeting of the Hospital Fund held in Manchester on Dec. 12th it was pointed out that the difference between the annual income and annual expenditure of the hospitals was £51,000, a deficit largely made up of charges upon the hospitals of patients coming from outside Manchester and the Borough of Salford. These outside patients cost £95,000, and the contributions in respect of them amounted to £44,000. Some very prosperous resorts favoured by Lancashire business men gave but meagre financial support. Manchester needed more organisation and coördinated effort if more funds were to be obtained.

Royal College of Physicians of Edinburgh.—At the annual meeting of the College held on Dec. 6th Dr. George Lovell Gulland was elected President of the College for the ensuing year. Sir Robert Philip, Drs. J. C. Dunlop, R. A. Fleming, Robert Thin, Lamond Lackie, and Edwin Matthew were elected members of the Council, and Drs. Dunlop and Claude B. Ker as representatives of the College on the board of management of the Royal Infirmary. The other office-bearers of the College for the ensuing year are as follows: Vice-President, Dr. Dunlop; Treasurer, Sir Norman Walker; Hon. Librarian, Dr. Thin; Curator of Research Laboratory, Sir Robert Philip; Secretary, Dr. J. S. Fowler.

Bethlem Royal Hospital.—A course of lectures and practical instruction for the Diploma in Psychological Medicine granted by the various universities is given at Bethlem Royal Hospital twice yearly during the spring and autumn. The next course, which will begin on Jan. 14th, 1924, will conclude in April and is divided into two parts—A and B. Part A deals with the anatomy, histology, and physiology of the nervous system and psychology, and Part B consists of lectures and demonstrations of neurology, psychological medicine, and mental deficiency. Clinical instruction in psychological medicine is given at Bethlem Royal Hospital every morning (except Wednesdays) at 11 o'clock. Further particulars may be obtained from the Physician-Superintendent at the hospital, S.E. 1.

Royal Medical Benevolent Fund.—At the last meeting of the Committee 30 cases were considered, and £350 was voted to 22 applicants. The following is a summary of some of the cases relieved :—

Daughter, aged 77, of M.R.C.S. who practised at Market Drayton and died in 1878. She has been given a home and an allowance of £26 per annum for some years by a cousin who died in May last, and now she has to find other accommodation. Friends have helped her to the extent of £25 since December and she asks the Fund to give her some assistance. Voted £26 in 12 instalments.

Daughter, aged 39, of M.R.C.S. Eng. who practised near Rugby and died in 1902. Applicant has supported herself as a governess and owing to periods of unemployment has had a hard struggle to make ends meet. Her expenses during six months unemployment were about £52 and her total income amounted to about £70. She asks the Fund to give temporary assistance. Voted £10.

Widow, aged 66, of L.R.C.P.I. who practised at Worksop and died in a nursing home in Ireland in 1917. Applicant's late husband was unable to make any provision for his wife or family as he had to retire from practice owing to a mental breakdown. The son is unable to give any help and one daughter is married. The remaining daughter lives with her mother and shares expenses. Applicant had a temporary Government appointment which has now ceased, owing to ill-health. Voted £3 in two instalments as from Dec. 1st, and case to be reconsidered at the next meeting.

M.R.C.S. Eng., aged 60, who practised in Wales and through paralysis had to give up practice in 1892. Up to 1921 applicant's board, lodging, and attendance were paid out of his annuity, supplemented by friends' gifts and help from a brother. This brother retired from the Navy and is unable to give the same help. He applied to the Fund and the Committee voted £26 in 12 instalments. In 1922 this was repeated and at this meeting again renewed.

Daughter, aged 70, of M.R.C.S. Eng. who practised in the Isle of Wight and died in 1870. Owing to chronic ill-health applicant is quite unable to support herself. She lives with an old nurse and pays 3*s.* 6*d.* per week rent. Her only income is £20 from the Home for Incurables and the Old Age Pension. Voted £10 in two instalments.

Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

The seventh course of lectures for the Diploma in Psychological Medicine will begin at the Maudsley Hospital on Jan. 21st, 1924, under the direction of Sir Frederick Mott.

National Hospital for the Paralysed and Epileptic.—A post-graduate course on Diseases of the Nervous System will be held from Feb. 4th to March 28th, 1924. The general course will consist of clinical lectures and demonstrations, teaching in the out-patient department, and pathological lectures and demonstrations. A course of lectures on the Anatomy and Physiology of the Nervous System will be arranged if there are sufficient applicants. A course of clinical demonstrations, chiefly on Methods of Examination of the Nervous System, will be given. A course of eight lectures and six demonstrations on Neurological Ophthalmology to a limited number of students will also be held. A certain number of students can be enrolled as ward clerks or as clinical assistants in the out-patient department. Further particulars may be obtained from the Secretary, Medical School, National Hospital for the Paralysed and Epileptic, Queen-square, London, W.C. 1.

The late Lord Willoughby de Broke.—Lord Willoughby de Broke, nineteenth Baron, whose death occurred on Dec. 16th, besides taking a front place in politics, sport, and the arts, was always greatly interested in medicine, and especially in preventive medicine, in its relation to the reduction of venereal disease. On several occasions he raised the subject of the prevention of venereal disease in the House of Lords, and in 1919 took a leading part in launching the Society for the Prevention of Venereal Disease, accepting the Presidency of this Society, and the chairmanship of its Executive Committee. In combination with Lord Dawson and Lord Trevethin he helped to end the venereal controversy by bringing his own Society and the National Council for Combating Venereal Disease into line on the terms of the Trevethin Report, and one of his last acts, prior to his illness, was to visit Lord Trevethin with the object of discussing their proposed joint deputation to the Minister of Health. When he had formed a definite opinion as to what was the right course to pursue, he was not to be deflected from his goal, and courageously and determinedly followed his line. He earned the respect and affection of all who worked with him, and even those whose opinions differed most widely from his bore him no grudge.

The National Health Insurance Act in the Irish Free State.—The Irish National Health Insurance Commission made an important communication to the representatives of the Irish Medical Committee last week. Since the beginning of 1916 certification for benefits under the Act has been performed by the medical profession generally, the remuneration being provided by a special Government grant. The Minister of Finance in the Free State Government has notified the Commission of his inability to continue the grant. In the circumstances the Commission has looked round to find what funds it can make available for carrying on a necessary service. By obtaining a small contribution from the approved societies, and by calling on certain floating funds which can be put at he disposal of the Commission, sufficient moneys can be found to provide remuneration at about 3*d.* per head per insured person less than hitherto. At present, owing to an increased remuneration due to a war bonus, only part of which was taken off, the profession is paid 20 per cent. more than when the scheme was put into operation in 1916. If the profession now agrees to the reduction proposed by the Commission, the remuneration will return to a fraction above its original level. The statement of the Commission on this point was accompanied by an assurance that the offer, if agreed on, would be for one year only, and that early in 1924 the Government was to undertake an inquiry into the entire working of the National Health Insurance Acts in Ireland. Our Irish correspondent adds: It is to be hoped that such an inquiry will look into the whole question of the public medical services, without which the consideration of the question of medical benefits would be sterile. The Irish Medical Committee has not yet met to consider the communication from the National Health Insurance Commission.

THE MIDDLESEX HOSPITAL CONVERSAZIONE.

STAFF, students, and nurses of the Middlesex Hospital and Medical School were "At Home" on the evening of Dec. 18th, and so well organised was their reception of a very large number of guests, including the Prince of Wales, that all these seemed to feel at home also. The itinerary through the hospital and medical school was clearly mapped by sign-posts, and it was not advisable to move against the traffic. Section I. included the operating theatres and instrument rooms, where demonstrations of midwifery forceps appeared to have a special fascination for the general company, and the electrical and radiological departments. The anatomy and physiology departments made up Section II., while perhaps even more attractive, though apparently less frequented exhibits were available in Section III., which was reached by devious paths after passing through the other sections. In the anatomy department a series of stereoscopic photographs of dissected hearts suggested a useful means for students of revising and confirming impressions of their own dissections. Some very beautiful slides were on view in the same room. In the pathological department outstanding exhibits were those of the methods of growing anaerobic bacteria—the pathology of gas gangrene and tetanus had to be explained to a succession of enthralled listeners—and of the methods by which insulin is actually being made for hospital use. Even those who remain dubious as to the physiological value of alcohol must have been impressed by its remarkable efficiency in the laboratory, first in destroying the trypsin-secreting tissue of the ox pancreas, which is the raw material used, and at a later stage in precipitating the insulin from the concentrated watery solution to which this material has been reduced. Another exhibit was the demonstration of the treatment of boils by vaccines, in which the pus, the syringe, and the preparation of vaccines were shown, the final stage of the exhibit—and it is to be hoped of the boils—being the injection into an arm. Demonstrations of ultra-violet rays, of some newer laboratory methods of investigating disease, and of changes in the tissues in disease also received much attention. The whole impression was that of a hospital and school alive to its responsibilities alike for the care of the sick, for research, for the training of students and nurses, and, not least, for educating the public to appreciate the problems of medicine and the efforts being made for their solution.

Appointments.

BIGLAND, A. D., M.D., Ch.B. Liverp., M.R.C.P. Lond., has been appointed Honorary Assistant Physician, Liverpool Royal Infirmary.

BULMAN. M. W. B., M.S. Lond., F.R.C.S. Eng., Honorary Assistant Surgeon to the Norfolk and Norwich Hospital.

DAVIES, E. C., M.Sc. Manch., Assistant Lecturer in Chemistry at the Natal Technical College, Durban, South Africa.

HADFIELD, G., M.D. Lond., Consulting Pathologist to the Southmead Infirmary, Bristol.

HEADRIDGE, D., L.D.S., Lecturer in Dental Anatomy and Physiology, University of Manchester.

ORSMOND, E., M.R.C.S., L.R.C.P. Lond., House Physician, St. Bartholomew's Hospital.

TIBBLES, J. R., M.B., Ch.B., M.R.C.S., L.R.C.P., Resident Medical Officer, Willesden Health Department.

Salford Royal Hospital: PETERSON, N., M.B., B.S. Lond., F.R.C.S. Edin., F.R.C.S. Eng., Resident Medical Officer; GHOSH, J., F.R.C.S I., D.P.H., Anæsthetist (re-elected).

Vacancies.

For further information refer to the advertisement columns.

Bournemouth, Royal Victoria and West Hants Hospital.—Res. H.S. £150.

Chesterfield and North Derbyshire Hospital.—Res. Surg. O. and Sen. H.S. £300 and £200 respectively.

Dreadnought Hospital, Greenwich.—H.P. £150.

Exminster, Devon Mental Hospital.—Third Asst. M.O. £300.

Harefield, Middlesex County Tuberculosis Sanatorium.—Third Asst. Res. M.O. £400.

Hastings, Royal East Sussex Hospital.—Hon. S. and Hon. P.

Hospital for Sick Children, Great Ormond-street, W.C.—Biochemist. £600. Res. Med. Supt. £300.

Hull, Victoria Hospital for Sick Children, Park-street.—R.M.O. £100.

Liverpool, Royal Southern Hospital.—Hon. M.O. Electro-therapeutic, &c., Dept., and Hon. M.O. Electro-cardiographic Dept.

Loughborough and District General Hospital and Dispensary.—Res. H.S. £175.

Manchester, Northern Hospital for Women and Children, Park-place, Cheetham Hill-road.—Sen. and Jun. H.S.'s. £150 and £100 respectively.

Manchester Royal Infirmary,—Sen. and Jun. Pathological Registrars. £100 and £50 respectively.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. Res. M.O. £350.

Orkney, Parish of Eday.—M.O.

Reading, Royal Berkshire Hospital.—H.P. Also Third H.S. Each £150.

Royal Army Medical Corps.—Commissions.

St. Bartholomew's Hospital.—Radiologist. £500 to £1000.

Sunderland Royal Infirmary.—H.S. £140.

Union of South Africa, University of the Witwatersrand.—Senior Lecturer in Anatomy. £450.

West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Cas. P. £200.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Cockermouth, Cumberland.

The Secretary of State for the Home Department gives notice that he proposes to appoint a second Medical Referee under the Workmen's Compensation Act. 1906, for the Barrow-in-Furness and Ulverston, Kendal, Kirkby Lonsdale. and Windermere County Courts in Circuit No. 3. Application for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than Jan. 5th, 1924.

Births, Marriages, and Deaths.

BIRTHS.

BATTERHAM.—On Dec. 12th, at Stone Field, Kidbrook-grove, Blackheath, the wife of Captain D. J. Batterham, R.A.M.C., of a daughter.

HODGSON-JONES.—On Dec. 8th, at St. Agnes, Caterham-on-the-Hill, the wife of Dr. R. W. Hodgson-Jones, of a daughter.

MARRIAGES.

MOLESWORTH—HOARE.—On Dec. 15th, at St. Marylebone Parish Church, Hickman Walter Lancelot Molesworth, F.R.C.S., to Caryl Margaret, daughter of Mr. and Mrs. Stanley Hoare, of Cornwall-terrace, Regent's Park, N.W.

DEATHS.

CLAPP.—On Dec. 9th, at St. Leonard-road, Exeter, George Tucker Clapp, M.B. Camb., M.R.C.S., aged 66.

GOGGIN.—On Dec. 16th, at Folkestone, George Taylor Goggin, late Colonel, R.A.M.C., aged 72.

HOLLINGS.—On Dec. 10th, after three days illness, Edwin Thomas Hollings, M.R.C.S., L.R.C.P., of Jamaica-road, London, S.E.

MARSHALL.—At 1, Douglas-crescent, Edinburgh, on Dec. 16th, Lieut.-Colonel D. G. Marshall, I.M.S. (retired).

STEPHENSON.—On Dec. 15th, at his residence, Welbeck-street, Sydney Harry Stephenson, M.B., F.R.C.S Edin., D.O. Oxf.

SWAN.—On Dec. 13th, at a nursing home, following an operation, Charles Robert John Atkin Swan, O.B.E., M.B., B.Ch. Oxf., of Chester-place, Hyde Park, aged 60.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

DONATIONS AND BEQUESTS.—By the will of the late Lieut.-Colonel Alfred Conway Bishop, the testator left £500 each to Charing Cross Hospital, the London Hospital, St. George's Hospital, the West London Hospital, and the Given-Wilson Institute, Plaistow, E.; £200 each to the East London Hospital for Children, Shadwell, St. Mary's Hospital, Plaistow, the Hospital for Sick Children, Great Ormond-street, and the London Lock Hospital.—Mrs. Margaret Dacre, of Carlisle, left £1000 each to the Cumberland Infirmary, and the Free Home for the Dying, London, for a bed in memory of her husband.

Notes, Comments, and Abstracts.

ON THE HUMANITY OF METHODS OF SLAUGHTER.

BY LEONARD HILL, M.B., F.R.S.,
DIRECTOR, DEPARTMENT OF APPLIED PHYSIOLOGY, NATIONAL INSTITUTE OF MEDICAL RESEARCH

WHILE blood is a medium in which microbes readily grow, muscle is far more resistant to their invasion; this is because each muscle fibre is not only enclosed in a homogeneous membrane, but turns acid after death. The more blood therefore left in flesh, the greater will be the tendency to putrefaction, and the less the keeping quality. Every good housewife knows that flesh left lying on a dish turns faint quickly where oozings of blood touch it; she also knows that to keep suet sweet, the lumps of fat must be broken up and freed from blood-vessels and connective tissue, and then kept dry in flour to which it gives up its moisture.

Traditional Methods of Slaughter.

Now the butchers claim that animals killed by being shot in the brain cannot be so well drained of blood and lymph as those killed by the old traditional methods. In consequence, the flesh is moister, not so firm, weeps drops of blood and serum when cut, while the fat is softer and is not so white and shows spots and streaks of blood in places. The bacon-curers also say that the carcasses of pigs killed by shooting show extravasations or "blood-splashings" which are so disfiguring that competition with the bacon and ham of animals slaughtered by the old method—that is, by cutting the big arteries in the neck and bleeding—is out of the question, and therefore their trade will be ruined if the shooting method is made compulsory. These contentions are reasonable, and have, as I shall show later, a solid basis of physiological science behind them. They are supported by the photographs of bacon splashed with blood, which were given me by a bacon-curer, and are confirmed by the results of a recent test of the various methods of slaughter conducted by the Birmingham authorities at their public abattoir. I was one of those invited to witness there the killing of oxen, sheep, and pigs by means of various safety pistols and by the old method—viz., the pole-axe for oxen and throat-cutting for oxen (Jewish method), and the latter for sheep and pigs. It is generally assumed by laymen that the shooting is much more humane than the older methods. They suppose that the cutting of the throat is a most painful operation, and that struggling movements are necessarily a sign of pain. Educated in the false ideas and statements of writers of romance they are easily led astray by agitators having no knowledge of physiological science, nor surgical experience. Now the surgeon knows that sudden big injuries are not felt at the time of their infliction. He knows, moreover, that structures beneath the skin, apart from sensory nerves, are insensitive to the knife. It is well known that men injured in battle—severely and perhaps fatally—often fight on unaware that they are wounded until they see the blood or become exhausted. At most the wounded feel a dull sensation of a blow and numbness in the injured part. Pain comes later when a wound becomes septic and inflamed. The merciful insensitiveness of man to severe injury was impressed upon me, when I was a young house surgeon, by two cases—one of a man with his pelvis crushed between the buffers of a train. Conscious, although collapsed, he was able to tell me that he had felt no pain; shortly afterwards he died of shock. A similar case was that of a man impaled by the shaft of an iron railing through falling out of a window.

Is Throat-cutting Painful?

In defending the Jewish method of slaughter from unjust attack, the distinguished surgeon, Mr. T. H. Openshaw, stated that several cases of throat-cutting, which surviving from their injury had come under his care at the London Hospital, were questioned by him. Not one of these had felt the cut when it was made. When a very sharp knife is used to cut the healthy (not inflamed) skin, very little pain is felt—even by a man who is expecting the cut—particularly so in parts, such as the back, which are not so trained to delicate sensibility as the finger-tips. Horses standing loose in a stall are bled from the jugular vein for the obtaining of antidiphtheritic serum; they continue during the operation to eat placidly at the manger. Sensitive as the horse is to the sting of a fly, or whip, or prick of a spur, it takes no notice of the cut of a sharp knife. The skin has been evolved sensitive only to those things which concern it in the natural struggle for existence, and deep structures, apart from sensory nerves, protected as they are by the skin, are wholly insensitive to touch. The touch of whip or spur is like the sting of a fly, and is therefore felt by the horse, which must protect himself against a natural enemy; on the other hand, the cut of a sharp knife is not a natural stimulus and is unfelt.

Of these facts laymen are, as a rule, wholly ignorant. As to the duration of consciousness after the cutting of the throat, I can cite an experiment made by myself some years ago when, together with Mr. Openshaw, I defended the Jewish method of slaughter. I anæsthetised a calf and inserted a tube in the peripheral end of the cartoid artery—that is, in the end connected with the arteries supplying the brain. It must be borne in mind that the vertebral arteries do not also supply the brain of cattle but end in the muscles of the head. The tube placed in the artery was filled with a strong saline solution to prevent clotting of the blood, and connected with a mercurial manometer arranged so as to record (on a revolving drum) the blood pressure. The animal's neck was then cut with a sharp knife so as to divide the great blood-vessels at one stroke. The manometer recorded an instant fall of blood pressure which reached zero in a second or two, showing that the circulation in the great brain had ceased. Now we know by human experience that such sudden cessation of the circulation by depriving the brain of oxygen instantly abolishes consciousness, whether produced by pressure on the brain or by heart failure, or by occlusion of the great blood-vessels of the neck. An old medical writer tells of a beggar in Paris who had a large hole in his skull covered with skin. He sat in the street and for a coin allowed a person to press upon his brain, when he fell asleep. The moment the pressure was withdrawn he became conscious again. The very word carotid betokens sleep. Mountebanks used to compress these arteries in a goat and make the animal fall down unconscious or spring up again at their will. The garrotter by compressing these arteries by a grip from behind rendered his victim unconscious while he robbed him of his watch and money. A schoolboy playing at hanging has lost consciousness through the sudden compression of these arteries and has died in consequence. This unhappy accident has been repeated through a general ignorance of the danger.

Adventitious Factors.

Two facts are, then, indisputably established: (1) that a big injury, such as throat-cutting, is not felt at the moment of infliction; (2) that the cutting of the big arteries in the throat instantly arrests the circulation in the great brain and abolishes consciousness. The actual operation of cutting the throat is, then, as humane as shooting with the safety pistol, or stunning with the pole-axe. Each of the last two methods requires the correct application to the skull of the weapon, and either may fail in a restive animal which happens to swerve at the critical moment. The cutting of the throat requires the casting of oxen and sheep and the holding of pigs or hoisting in the head-down position, but it cannot fail. Any charge of inhumanity can therefore be made justly not against the cutting of the throat, but only against the operation of casting, or hoisting. Now sheep are carried in and cast on their backs on a table whether for shooting or throat-cutting, so any such charge fails in regard to sheep. Oxen, by the Jewish method, are cast by a tackle fastened to their feet and to a hoist. Pigs have a tackle fastened to one hind leg and to a hoist. If both legs were fastened the animals would be able to jerk themselves up and down. At Birmingham an electric motor was used to both hoist and transfer each pig from the pen to the slaughterer. Nine pigs were thus slaughtered in a space of a little over five minutes. At a big bacon-curing factory pigs are slaughtered far more quickly than this—e.g., at the rate even of ten a minute. On the other hand, a minute or two were spent at the Birmingham tests by the operator manœuvring round each pig, free in a pen, in order to get the pistol in the proper position for shooting, and there was some risk to the operator and much skill required of him. He was an intelligent official, highly trained in the use of the pistol. The pigs may struggle violently after shooting, convulsed by the damage done to the brain. In one case the convulsions were so violent that the throat could not be cut for about three minutes after the shot had been fired. The time spent in shooting pigs is, then, much greater than that spent in cutting the throats of an equal number. So, too, in the case of sheep, shooting requires two operations in place of one, a serious matter when some hundreds of sheep are killed in one day; it also requires two men when one suffices to hold and cut the throat. Shooting means, then, dearer meat.

Animals, whatever be the method of slaughter, have to be driven to market and pushed, pulled, poked, and tail-twisted by drovers in order to make them go first into the pens outside and then into the slaughter-house itself. By no means can they escape some measure of rough handling. Casting of oxen or hoisting of pigs entails, in my judgment, handling which is no more inhumane than the rest. Conducted skilfully and with electrically-driven hoists these operations may occupy no more or even less time than that spent in forcing and roping an animal into position for shooting. In casting an ox by the Jewish method a mattress is used. Mr. Openshaw found no evidence of bruising post mortem ; it is obviously not to the advantage of the butcher to bruise the meat and cause extravasation of blood in the carcass. The butcher asserts that the more gently beasts are handled and the less driven the more tender the flesh. It is obvious that it is a disadvantage to exhaust the muscles and produce excess of lactic acid in them. A hunted animal at once goes into rigor mortis after death, and its flesh is tough.

The Consciousness of Animals.

It must be borne in mind that animals have no more consciousness of death than uneducated babies have. Man's recognition of the hideousness and horror of the slaughterhouse is the result of education. It is absurd to think—as sentimental people do think—that animals are conscious of the presence of a dead carcass, or spilt blood. Careful observation has convinced me—as it will any level-headed man—that animals in an abattoir are nervous of moving men, of drovers with their pushing, pulling, and tail-twisting, but so soon as they are left alone they become placid and indifferent to the sights about them. Pigs are naturally disturbed by the squeals of other pigs when caught and pulled from their pen, but no more so than when they are caught for the operation of nose-ringing. Whatever suffering there may be is separable from the actual operation of slaughter, and occurs in the process of driving the beast to and putting it into position for slaughter. Whether an animal is pushed, pulled, and tail-twisted into the right position for the pistol, or cast or hoist into the posture necessary for throat-cutting, appears to me, then, a matter of very small moment. As the result of human experience we must conclude that a cast or hoist animal will be so hypnotised by the unusual position into which it is suddenly put, that it will be able to take no further notice of anything going on around it. The layman must recognise that while an animal with its throat cut continues to breathe and move convulsively for some minutes, these convulsive movements are not signs of consciousness. The shot beast may be convulsed for no less a time. Such convulsions are due to acute anæmia of the power parts of the nervous system. Observation has shown me that the movements of the eyes of an ox become convulsed within a very few seconds of throat-cutting, a sure sign of the acute anæmia and dying state of the centres in the mid-brain. The great brain, where sits consciousness enthroned, ceases to function at once, the mid-brain next, the spinal bulb next, and last, the centres of the spinal cord.

It has been a custom of certain African savages, after decapitation of an enemy, at once to close the blood-vessels of the neck with a cautery, and then amuse themselves by exciting reflex movements in the corpse. No doubt the savage thinks his enemy feels his insults. It is well known that even movements of locomotion can take place in a lower animal the great brain of which has been destroyed. Thus, a fowl, after decapitation, runs round before it falls over. When from an anæsthetised cat the great brain is removed without loss of blood the body continues to carry on its functions, including respiration, and these functions may be studied by the physiologist for many hours. Nay, if the body of the animal is kept in a warm bath even for several days. The layman must discard his crude idea that movement betokens consciousness before he can form any just view of the humanity or inhumanity of a method of slaughter.

The Flesh of Shot Animals.

I now return to the contention of the butchers that the flesh of shot animals is moister and contains more blood. This was clearly shown by the Birmingham tests. Half carcasses of selected and representative animals killed by each method were reserved in a locked-up store and examined a week later. On cutting up the carcasses and comparing the flesh of the shot oxen with that of the ox killed by the Jewish method, it was clear that the flesh of the latter was firmer, drier, and free from blood. The flesh of the shot carcasses not only was moister and softer, but showed blood in the vessels. The flesh of the pole-axed ox appeared to me somewhat drier and freer from blood than that of the shot animals, but there was no striking difference. When the throat is cut by the Jewish method the centres in the lower parts of the nervous system—viz., the spinal bulb and cord—continue to act for a time. Deep, gasping respirations occur, and convulsive movements which press the blood out of the muscles and organs of the belly. The vaso-motor centre in the spinal bulb is excited by the acute anæmia and causes constriction of the arteries all over the body, the heart is accelerated in action, and the bowels undergo peristaltic movements which wring out the blood. The whole of these actions result in almost complete drainage of blood and tissue-lymph out of the body. When an animal is shot the slaughterers cut the throat—this after some period of delay—and then, respiration having stopped, try to imitate its effect by rocking the body with their feet. The bullet by explosive action may set up increased pressure in the skull, and so stimulate the inhibitory centre of the heart which lies in the spinal bulb, and thus temporarily stop the action of the heart. This is a well-known result of increasing the pressure within the skull, and was shown to occur by the late Sir Victor Horsley when a bullet was fired into the skull. By pole-axing the skull is opened, and it is therefore unlikely that inhibition of the heart should result. After the shooting or pole-axing of an ox the lower nerve centres may be, and generally are, destroyed by the insertion of a can or wire. This destroys the vaso-motor centre and relaxes the muscles. The blood by either of these methods cannot, therefore, be emptied out from the body so well as it is by the Jewish method.

When the brain of a small mammal is destroyed, as it can be instantly by the passage of a bradawl through the foramen magnum into the skull, it occasionally happens that the physiologist cannot keep the body alive by artificial respiration for the study of its functions. He then finds a clot formed in the right auricle of the heart It is probable that some damaged tissue—e.g., small fragments of bone—is in these cases carried from the venous sinuses of the brain to the heart, and there set up clotting. Such clotting would be more likely to happen in a shot than in a pole-axed animal ; if a clot forms in the heart bleeding is impeded.

Drawbacks of Pistol and Pole-axe.

It is clear, then, that the Jewish method of killing oxen is the best for draining an animal of blood. In Colombo, Ceylon, cattle are killed by throat-cutting after they have been fastened to tackle, whereby they are tilted into the head-down position so that the drainage of blood is complete. The machine carries the carcass on to the flayers, &c. By such means cattle can be killed, flayed, and cut up with great rapidity. Properly carried out, no better or more humane method can be devised. The pole-axe is not a certain method in the case of restive animals and in the hands of inexperienced slaughterers. The blow of the axe may sometimes miss the small area of the skull—about the size of a breakfast cup—which has to be struck. Missing this the pole-axe goes into the air spaces within the thick wall of the skull, and does not stun the animal. At Birmingham, in one case, the first blow brought the ox to its knees, but did not penetrate deeply enough to allow the cane to be used. It was then repeated. The long-armed pistol-killer of the R.S.P.C.A. appears to be a surer method of killing oxen. As in the matter of bleeding, the results of these two methods are not very dissimilar, the choice for oxen would then be with the pistol rather than the pole-axe. The free bullet is, however, not safe to use in slaughter-houses, and while the captive bullet is safe, it is difficult to use on restive or wild animals. An excellent method of slaughtering oxen is in use in Australia. Driven up an inclined path each comes finally to a small narrow enclosure with a window at the end. The ox lifts his head to look over, and a man standing above with a hammer at this moment stuns it. The ox falls, and is then carried down to the slaughter-house where it is hung up and bled. Breathing continues after stunning, so that bleeding is efficiently carried out. An ineffectual attempt to stun a pig with a hammer was made at Birmingham.

In the case of pigs, by fastening the animal head down and cutting the big arteries in the neck, blood and tissue and lymph are drained out by gravity, by convulsive respirations, and by general convulsive movements. When an animal is so bled, lymph passes from the tissues into the capillaries and veins in the effort of the body to keep up an effective circulation. The carcass of the pig thus bled, selected at Birmingham, showed firm dry flesh and firm white fat, and no blood could be squeezed out of the intercostal veins by running the finger along these. The shot pigs fell on the floor and were more or less convulsed ; in one case the convulsions delayed for three minutes the cutting of the throat. The effect of gasping respirations and gravity did not come into play. Hence the carcasses of the shot pigs showed moister flesh, pinker fat with blood in the vessels, and here and there small extravasations. It is obvious that such carcasses will keep less well and also be less fit for curing. The bacon curers say that the pig after shooting often falls with the hind feet so extended that the veins are ruptured, and large extravasations caused which make the hams useless for curing.

I took away the blade bone with some of the muscles attached to it from each one of the selected pigs. I placed a little of the muscle, taken from a similar part in every case, on a glass slide, flattened it out with a cover-slip and examined it under the microscope, using a low power. Blood was then seen here and there in the small blood-vessels and capillaries in the muscle and fat of each of the shot pigs. The muscle and fat of the pig bled in the ordinary manner, on the other hand, showed very little blood. The difference was clear also in sections of hardened and stained muscle. From the shot pigs, and one bled in the old way, I took 2 g. of flesh cut from the same part and minced it in each case in 20 c.cm. of water, and then froze and thawed the mince so as to break up the tissue and set the colour free. The coloured solution was then filtered. That of the pig bled in the old way appeared pale; that of one of the shot pigs was pinker; that of the other quite a deep pink. I examined each solution with the spectroscope and found hæmoglobin present. I then found how much water had to be added to each to make the characteristic bands of hæmoglobin almost disappear. Taking 3 c.cm. in each case I had to add 9 c.cm. of water, in the case of the pig bled in the old way 16 c.cm. in the case of one, and no less than 25 c.cm. in the case of the other shot pig. These results confirm what the naked eye observed, and the microscope showed; the muscle of the shot animals contained more blood.

Conclusion.

The butchers and bacon-curers are then right in their contention, and on the grounds of humanity, economy, and proper carrying out of a great business they should not be prevented from continuing the old methods of slaughter. These methods have been found right through ages of human experience. It is clear that bleeding is most rapid and complete in the head-down position, and I would urge that all pigs are killed in this position. A pulley and tackle can be used in any village. If a pig is stuck while standing up, bleeding cannot be so free or loss of consciousness so immediate. A chemist in the leather trade tells me that the quality of leather is lowered by the presence of blood in the hide; not only is the leather coloured by the blood, but suppleness is diminished. This is another point in favour of the method which secures most efficient bleeding.

QUO VADIMUS?

THE sustained interest taken by the general public in the course of nine public lectures just concluded by Prof. A. Dendy, F.R.S., on the Biological Foundations of Society is symptomatic of an age that is tending more and more closely to follow the progress of science. Among his audience was a very considerable sprinkling of clergy, and fitly enough, because the culmination of the lectures was a speculation from the zoological standpoint on the latter end of modern civilisation. The underlying basis was no new one. Individual species and civilisations have so far all followed the common trail—birth, youth, maturity, old age, death, a summary in fact of Shakespeare's seven ages, but Prof. Dendy examined whether there might not be a way out. There were, he argued, six problems urgently awaiting solution if modern civilisation was to escape the fate of its predecessors. The physical environment had to be ameliorated, the system of education had to be remodelled, the population controlled, the race improved by selection, the social organisation altered for the better, and the relations between the nations placed on a sounder footing. The most novel of the suggestions was that based on the view that man had to some extent superseded his physical by his mental environment, with the result that a vastly increased importance has been given to his mental images and emotions, and that this new mental environment now leads the way in progressive evolution, just as the physical environment did in the lower stages. On mental grounds, therefore, he advocated country life for early education and development, and for later education insisted on the importance of fostering ideas that were beneficial to mental and moral development, and repressing if not eradicating those of an opposite tendency. In dealing with the control of population he strenuously opposed teaching the masses of the people to restrict their families by means that seemed to strike at the very roots of self-respect and decency, and preferred the alternative solutions of a return to the land or emigration. For selection of the human race he looked to the progress of individual ideals rather than to any self-conscious State scheme, while warmly approving the policy of preventing the propagation of the feeble-minded. In discussing international relations he held that in view of the absence of physiological barriers and the breaking down of geographical barriers there should be erected strong moral barriers to prevent indiscriminate breeding, looking forward to the time when by division of labour each nation should coöperate in the interests of humanity as a whole. His concluding note was optimistic, to the effect that if modern civilisation should fail there was much in it of permanent value that would survive and serve as a foundation upon which future generations might build a more noble edifice.

A NEW CANCER CURE.

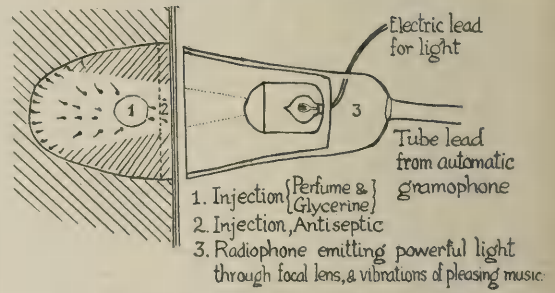
WE have received from the Director of the Imperial Cancer Research Fund the following account of a proposed treatment for cancer as submitted to him for publication. The document appended is exactly as it was received.

TREATMENT FOR CANCER.

Devised by Garnet B. Fawcett, A.R.A.S., Professor of Astrology, Aqualogy, Physiology, Dietics, Hygiene, etc., etc., etc.

Points to Remember.—(1) The germ is the equal of a serpent; (2) Serpents can be Charmed, Attracted, or Diverted by (3) Perfume, Sweets, Music, Light.

Treatment.—Diet and Salt the Body to give all the resistance possible to the germ. Inject to nearly the center a quantity of Glycerine impregnated with a powerful *Natural Perfume* (not Synthetic) (see No. 1 in Sketch). Then just beneath the Skin inject a powerful non-irritant Antiseptic (see No. 2 in Sketch). Then apply the Radiophone (see No. 3 in Sketch).


Electric lead for light
1
2
3
Tube lead from automatic gramophone
1. Injection {Perfume & Glycerine}
2. Injection, Antiseptic
3. Radiophone emitting powerful light through focal lens, & vibrations of pleasing music.

Action of Treatment.—The germ being held in check with the increased Salts in the body, will change its course and seek the Perfume and Glycerine, afterwards it will seek the Light and Music from the Radiophone and fall into the Antiseptic waiting for it. This treatment should be continued until the organism is exhausted of the germ, building up the Flesh behind it until the organism itself is ejected.

We agree that the cure presents distinctive features which make it unique among the many hundreds of suggestions which are submitted to the Imperial Cancer Research Fund for consideration.

WRIGHT'S IMPROVED PHYSICIANS' AND SURGEONS' VISITING LIST, 1924.

THIS list is now in its thirty-first year. The compiler, Dr. Robert Simpson, seems to have taken for his motto "Economy in space and time," for in a small compass—the book measures 7½ by 4 by ½ inch—is compressed a vast amount of useful information: diary, postal regulations, utero-gestation and posological tables, average heights and weights, poisons and antidotes, facts concerning the principal zymotic diseases, and so forth, while an ingeniously constructed visiting list enables the patient's name to be entered monthly instead of weekly, and the consultant's record enables him to see at a glance the date and hour of his appointment, together with the name of the medical man in attendance. In the visiting list one month is shown at an opening with space for receipts and payments. The obstetrical and vaccination engagement sections are equally well arranged, and space is also provided for motor-car expenses and memoranda. Well bound and printed on good paper, with a pencil within the flap of the cover, this list is ruled for from 40 to 240 patients, and the price varies from 10*s.* 6*d.* to 13*s.* A copy will be sent to any member of the medical profession on approval by the publishers, Messrs. John Wright and Sons, Ltd., Bristol.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

THURSDAY, Dec. 27th.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

Observations
ON
THE PARKINSONIAN SYNDROME IN LETHARGIC ENCEPHALITIS:
A PATHOLOGICAL POSTURE.*

BY IVY MACKENZIE, M.D. GLASG.,
VISITING PHYSICIAN, VICTORIA INFIRMARY, GLASGOW; PHYSICIAN TO THE MENTAL OBSERVATION WARDS, GLASGOW; NEUROLOGICAL SPECIALIST TO THE MINISTRY OF PENSIONS.

THE reactions of the human subject to the virus of epidemic encephalitis afford an excellent example of the general principle that however varied may be the sites of focal irritation or destruction of nervous tissue there is only a very limited number of ways in which the organism shows a response. It is difficult to imagine how so many lesions diffused through the series of basal nuclei which underlie the nervous integration of the body can find expression in manifestations characteristic for a single disease. And yet so it is; for although the signs and symptoms are admittedly protean, they combine as a whole to present a clinical picture which is typical for the illness.

The initial motor agitation bears only a superficial resemblance to that of chorea. It may vary from a series of tics affecting isolated muscles or portions of muscles of the head, trunk, or limbs, to rhythmic, undulatory, and coördinate gesticulations of the whole body resembling certain phases of hysteria. Myoclonus may be so violent as to render it difficult to prevent the self-infliction of bodily harm. Spasms of rotatory movement round the axis of the trunk may be seen either on the floor or under the bedclothes. Even where the behaviour is suggestive of chorea the phenomenon is distinct, in that by persuasion or by the attraction of attention it can be inhibited.

When to the peculiar agitation there is added paresis of cranial nerves—third, fourth, sixth, seventh, or twelfth—it is obvious that one is dealing with a process of a distinctive character. Implication of medullary structures is exhibited in disorder of respiratory, circulatory, or alimentary movement, as may be seen in isolated cases in spasms of rapid respiration, in others with bradycardia (pulse 40 per minute without heart-block), or tachycardia, and in still others with vomiting and profuse salivation.

CHARACTERISTIC SEQUELÆ TO LETHARGIC ENCEPHALITIS.

The sequelæ in which the nature of the disease may be disclosed for the first time are even more characteristic than its initial stages. For descriptive purposes these might be regarded as belonging to two classes according as they affect children on the one hand, and adults on the other. In considering this aspect of the problem one is naturally confined to the late effects of the earlier epidemics. In the case of children who have retained a legacy of the original disease the main disorder consists in profound emotional instability with perversion of conduct. Ebullitions of excitement, with uncontrollable impulse, manifesting itself often in outrageous and criminal conduct, would appear to afford the evidence of a serious dissolution of nervous integration effected in the earlier stages of the disease. Even in the most extravagant forms of misconduct there is rarely any clouding of the perception such as one finds in epilepsy, for when the spasm has subsided there is clear recognition of what has happened, and often an expression, even a precocious expression, of regret. After two or three years of illness one frequently finds no abatement of mental activity so far as intelligence is concerned, although, of course, organised mental development would appear in some cases to have been brought to a standstill by the incidence of the disease. The peculiar character of the sequelæ in children is probably determined by the fact that the disease has supervened during the early developmental period, and that neural dissolution has occurred before the organism has had an opportunity of establishing cerebral stability. Normal organic growth depends on the harmonious development of correlation between the basal centres which control the expressions of the grosser emotions and the cerebral centres which constitute the structural basis of perception and will-power. It is conceivable that extensive destruction of basal structures would lead to results in children quite different from those to which it would give rise in adults.

In adults in whom the early stage of lethargy was survived there was frequently a period of sleeplessness and restlessness, but there was no general tendency to the exhibition of those aberrations of conduct which lend such a distinctive colouring to the late effects in children. It has transpired, however, that some cases have acquired a relic of their own no less peculiar in its general characteristics than the impulsive restlessness of the younger victims. This relic or sequela of encephalitis in adults is described as a "Parkinsonian syndrome," on account of its alleged resemblance to paralysis agitans. A considerable literature has already appeared on the subject, and the descriptions of different observers in various countries bear testimony to the uniformity of the nature of the disability. General muscular rigidity, masking of the expression, relative immobility of the eye-balls, fixation of the head on the shoulders, restriction of movement, and especially of rotatory movement in joints, comprise in varying degrees the almost invariable features of this condition. Tremors in some cases, and especially in the hands, lend an aspect which suggests the resemblance to paralysis agitans. Propulsion or retropulsion is not present to the degree which might be expected from the facial expression and general rigidity, and the practically constant presence of inordinate salivation justifies a doubt as to its affinity to the syndrome with which it has been compared.

To those accustomed to view an illness from the point of view of the attitude, posture, or behaviour of the organism, it must have occurred that while the by-product in children is an expression of aberrant psycho-motor excitement, that in adults is closely akin to catatonia. It is, however, a catatonia without stupor, although in some cases there is a certain degree of psycho-motor retardation. This important aspect of the problem has received but very fragmentary attention in current accounts; but it cannot be dealt with here, as it is our purpose to consider a more limited but equally interesting side of the question—namely, the organic basis of the so-called "Parkinsonian syndrome."

ORGANIC BASIS OF THE PARKINSONIAN SYNDROME.

What strikes one most forcibly about a series of these cases is the extraordinary constancy of the appearance they present. The staring eyes with an expression of fear or of wonder emphasised by the immobility of countenance, the fixation of the head on the shoulders in erect posture, and the rigid attitude of the body as a whole, gliding rather than walking, are features which suggest the characters of a lay figure. In turning round the body turns as a whole. Rotation of one part of the body on another cannot take place in sufficient time to give the impression of coördinate or natural agility. A disability of this character and extent must be associated with a very widespread depression of neural function. If it depends immediately or remotely on a localised lesion, that lesion must be situated at important centres of nervous integration. The early choreiform movements and the late rigidity resembling paralysis agitans have been responsible for the suggestion that the lesion may be found in nuclei in the base of the cerebrum. Little is known, however, about the function of these nuclei in health and in disease, and the evidence as to their mode of action is somewhat contradictory. On the other hand, there is very definite evidence that nuclei in the mid-brain, pons, and medulla are involved in the acute processes of the early stages of encephalitis, and the clinical evidence of such involvement has been correlated with post-mortem findings. Ophthalmoplegia, facial and hypoglossal paresis, respiratory disorder, profuse salivation and trigeminal neuralgia are frequent symptoms in the initial stages, and they are symptoms whose anatomical basis can be interpreted in the light of the function of nuclei whose physiological action is generally recognised.

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* Made under a grant from the Medical Research Council.

Although the Parkinsonian syndrome does not at first sight appear to depend on involvement of these nuclei, it does very forcibly suggest the implication of a neural system in the base of the brain to which some of them at least are closely related. This system is known as the *median longitudinal fasciculus.* According to Elliot Smith,[1] it consists of—

> "a very conspicuous tract of longitudinal fibres which extends throughout the whole length of the medulla oblongata, pons, and mesencephalon, in the formatio reticularis or tegmental part of each. Below, at the level of the decussation of the pyramids it becomes continuous with the fasciculus anterior proprius of the spinal medulla, whilst, by its superior or opposite end it establishes intricate connexions in the region immediately above the mesencephalon. Throughout its whole length it lies close to the median plane and its fellow of the opposite side. In the mesencephalon it is applied to the ventral aspect of the central grey matter, whilst in the pons and medulla oblongata it is situated immediately subjacent to the grey matter of the floor of the fourth ventricle. One of its most salient features is the intimate association which it presents with the three motor nuclei from which the nerves for the supply of the muscles of the eye-balls take origin—viz., the oculo-motor nucleus, the trochlear nucleus, and the abducens nucleus. The first two of these are closely applied to its medial and dorsal aspect, while the abducens nucleus is placed on its lateral side. Into each of these nuclei it sends many collaterals, and probably also some of its constituent fibres, and these end round the nuclear cells. It would appear, therefore, that one of the most important functions of this strand is to bind together these nuclei and thus enable them to act in harmony, one with the other. Fibres also enter the median longitudinal fasciculus from the vestibular nucleus of the acoustic nerve system. The result obtained by degeneration would seem to indicate that to a large extent it is formed of fibres which run a short course within it."

The cephalic end is extremely complicated, and is believed to have relation to the globus pallidus and to nuclear centres in the posterior commissure (Muskens).[2] Into its composition there are said to enter also fibres from the cortico-bulbar tract to the oculo-motor nuclei. Whatever modification it may have undergone in its functional reaction as the result of cerebral development, it is essentially a system of great antiquity and of great neural stability. It has a phylogenetic history coincident at least with the evolution of vertebrate life. In fishes, amphibians, and reptiles it is one of the largest bundles of the medulla oblongata ; and in man its fibres acquire their medullary sheaths between the sixth and seventh month of fœtal life, and at the same time as the fibres of the fasciculus anterior proprius of the spinal medulla with which it stands in connexion.

With the transference of the spinal accessory nerve from visceral to somatic innervation the median longitudinal fasciculus enters into relation with the nucleus of that nerve in its control over the muscles which regulate the movements of the head on the trunk. Here, then, is a common neural system, comprised of two long fasciculi and containing a variety of fibres, which binds in integral relationship the motor nuclei which govern the conjugate movements of the eyes and the complementary coördinate movement of the head on the trunk. It is feasible to suggest that this system is in some way associated with the phenomena of the Parkinsonian syndrome, for its activity is admittedly connected with those movements which in this disability are laid under restraint.

Posture or attitude is the dominating feature of the clinical picture. Muscular rigidity is the sign of the disease. There is no muscular wasting, no motor paralysis, and the tendon reflexes are present, and are relatively more brisk on the side which is more rigid when two sides of the body are affected in different degrees. Although there is hypertonicity, there is no spasticity. The defect is obviously one associated with muscular innervation, and yet both the upper and lower motor neurones appear themselves to be intact.

In discussing the wider combination of reflexes in the production of coördinate movement, Sherrington[3] points out that—

> " the motor neurones of a muscle of the knee are the terminus ad quem of reflex arcs arising in receptors not only of its own foot, but from the crossed fore-foot and pinna, and tail also undoubtedly from the otic labyrinth, olfactory organs, and eyes. Thus, if we take as a standpoint any motor nerve to a muscle it consists of a number of motor neurones which are more or less bound into a unit mechanism ; among the reflex actions of the organism a number can be brought together as a group because they all in their course converge together upon this motor mechanism, the final common path, activate it, and are in harmonious mutual relation with regard to it. They are in regard to it what were termed above 'allied' reflexes."

The problem of the functional activity of the motor neurones concerned in this syndrome should be approached in the light of this conception. The compendium of neural elements which comprise the median longitudinal fasciculus binds into a harmonious mechanism the motor nuclei to the extrinsic muscles of the eyeballs (third, fourth, and sixth), the motor nuclei for the muscles of the neck (eleventh, &c.), and through the fasciculus anterior proprius the motor nuclei in the anterior cornua of the cord. The fibres of the fasciculus may be regarded as the connector portions of reflex arcs converging on the motor nuclei whose internal arrangements constitute the motor mechanisms for the muscles they supply. Now the fasciculus itself is a tract which is common to a variety of arcs emerging from various sources, and in virtue of the peculiar properties of these sources exercises a determining influence on the activity of the motor mechanism on which they impinge. (1) Stimuli enter the fibres of the fasciculus through its complex origins from the superior colliculus, posterior commissure, and globus pallidus. (2) The influence of the cerebral cortex is exercised through the cortico-bulbar tract, some of whose fibres are said to join the fasciculus, while other oculo-motor fibres from the cortex enter the nuclei directly. These fibres are motor in the sense that they originate in the cells of the motor cortex, but they are afferent in respect of their relation to the lower motor neurones. (3) Stimuli from the visual apparatus enter the fasciculus through the mid-brain, and from the fasciculus are distributed to the motor nuclei. (4) Fibres from the vestibular nucleus (Deiters') join the fasciculus to be distributed to the motor nuclei, and in addition to these other fibres find a course through the vestibulo-spinal tract to the motor nuclei in the cord.

Coördinating Function of Median Longitudinal Fasciculus.

It is thus evident that the fibres of the median longitudinal fasciculus and related structures have a very varied origin, but they have this in common that they combine in their various ways to exercise a coördinating influence, not merely on individual motor nuclei, but on a series of motor nuclei which operate in a mutually harmonious fashion for a definite purpose. The question then arises whether it is possible by examination of the contributing sources to detect any abnormality which might indicate a faulty reaction of the mechanism, of which the median longitudinal fasciculus constitutes a consolidating element. The following information is available : (1) The neural connexions of the cephalic end of the fasciculus have not been sufficiently defined to warrant their consideration in a clinical interpretation ; (2) there is no evidence, in the cases examined, of disease of the motor cortex or of upper motor neurones ; (3) the visual apparatus is normal ;

(4) examination of the vestibular apparatus in a series of cases showed in a majority of these an abnormal reaction, and the degree of abnormality was proportionate to the gravity of the general disability.

The following record of a typical case illustrates the course of development of the disease and the present clinical state :—

CASE 1.—A single woman, aged 32, who had previously enjoyed excellent health, took ill on May 20th, 1920, with sickness and vomiting. This lasted for a week, during which she slept normally, and had no other symptoms. A pain then began at the back of the right ear, and she had a sensation in her face as if it were being squeezed. Coincident with the onset of pain, the right side of her face and right arm began to twitch; this continued for ten days, during which she was sleepless. She then passed into a delirium, which lasted other ten days. She has a vague recollection of suffering pain during the delirium. Following the delirium she had diplopia which lasted a week. During the following six months pain in the head and right arm was persistent and she never had a good night's rest, although she sometimes slept during the day. Her general condition, however, gradually improved; the pain became less, and on Dec. 12th, 1920, she resumed her work. From this time till August, 1921, she enjoyed comparatively good health, although the pain in the head and arm never completely disappeared, and she suffered occasionally from peculiar feelings in the arms and legs "as if something was working in them." In August, 1921, she noticed a stiffness in her neck, arms, and legs. This was most profound in the left arm to begin with, and it gradually became worse till she was compelled to give up work in December, 1921. Since then the stiffness has increased, more particularly on the right side, and there has been a tendency to profuse salivation. A remarkable feature in her condition is that since the onset of the rigidity the headaches have disappeared, although the pain in the shoulder and arm still remains.

Later State.—On March 19th, 1923, but for a slight tremor of the right hand, she looked, when standing in the erect position, as if she were petrified. The eye-balls were fixed, the expression was in statue-like repose, the head erect and stationary, the right shoulder slightly elevated and retracted, the arms were slightly flexed at the elbows, and the hands slightly flexed, almost meeting in front. She progresses along the floor like a mobile mass. The movement of sitting down was carried out under inhibition, and further examination shows that if the buttocks were as rigid as the shoulders, to sit would be impossible. The rigidity was more intense in the cephalic than in the caudal end of the body. The right shoulder was more rigid than the left, and the shoulder-joints were more firmly flexed than those of the elbows or hands. Rotation was defective in the joints of the limbs as well as in those of the neck. The tendon reflexes were exaggerated, and relatively more so on the side on which the rigidity was more pronounced. There was tenderness on pressure over the back of the neck and on the shoulder on the right side. There was less tenderness on pressure of the right elbow and no tenderness on pressure of the right wrist. The tongue was tremulous and was protruded with difficulty, but apart from excessive salivation the visceral systems appeared normal, and menstruation was regular. Mentally she was quite clear, and her memory was excellent. She was extremely anxious to become well, although the effort to help herself appeared to impeded by a sense of hopelessness and despair. She was emotionally unstable and wept on slight provocation. The pupils were unequal, the right being smaller and less reactive to light than the left; both pupils reacted in accommodation; there was no squint or defect of vision or of hearing. Examination of the vestibular apparatus by the caloric method and by rotation on a Bárány chair showed an absence of nystagmus, of vertigo, of falling, and of past pointing.

One is dealing here with a state of pathological posture immediately due to muscular hypertonicity. There is no paralysis except in so far as movement is restricted by abnormally increased tonus. There is obviously a disturbance of nervous equilibrium in favour of processes which induce muscular tonus.

The following summary in the first eight cases examined applies generally to the results of the examination of the vestibular reaction in a series of 32 cases. The cases are arranged in order according to the severity of the muscular rigidity. There was little difference in this respect between each of the first four, but there was more rigidity in the first four than in the last four. In Case 8 the vestibular reactions were practically normal, although the patient exhibited in a mild degree the expression and gait characteristic of the syndrome. The first four were completely incapacitated by the rigidity; the last four were able to go about and help themselves to some extent. Cases 5 and 7 are specially interesting in that while ocular movements could be induced by the caloric test and by rotation, there was no vertigo, falling, or past pointing, and the patients walked straight from the Bárány chair without reeling or stumbling. The results of the caloric tests may be summarised as follows :—

(*a*) *Nystagmus.*—(1) Absence of nystagmus to caloric test in four cases out of eight (Nos. 1, 2, 3, 4). (2) Diminished or delayed in one case (No. 5). (3) Diminished in one eye and absent in the other in one case (No. 6). (4) Normal in degree, but abnormal in direction in one eye in one case (No. 7). (5) Normal in both eyes in one case (No. 8).

(*b*) *Vertigo.*—(1) Absent in four cases (Nos. 3, 4, 5, 7). (2) Present in four cases (Nos. 1, 2, 6, 8).

(*c*) *Falling.*—Subjective and objective falling absent in those cases in which vertigo was absent (Nos. 3, 4, 5, 7).

(*d*) *Past Pointing.*—Absent in all cases except one (No. 8).

A number of interesting clinical points have been passed over in the attempt to focus attention on the involvement of the proprioceptive system, for this would appear to afford the most favourable means of interpreting the conditions of neural dissolution which underlie the syndrome. The vestibular tests, however, present a paradox which invites further inquiry. The absence of a vestibular reaction is not at first sight consistent with muscular hypertonicity. Destruction of the vestibular apparatus is followed, as a rule, by loss of muscular tone on the side of the lesion. Consideration will be devoted later to the nature of the disturbance of the proprioceptive system which is consistent with insensitiveness of the vestibular apparatus and abnormal increase in muscular tone in one and the same subject.

CLINICAL PICTURE OF LETHARGIC ENCEPHALITIS.

Attention has been called already to the fact that notwithstanding the widespread distribution of inflammatory reaction in the early stages of lethargic encephalitis, the clinical picture is one which is, generally speaking, typical for the disease. Through the maze of reactive phenomena incident to multiple foci of irritation there may be noted signs and symptoms which, when taken as a whole, are characteristic expressions of one morbid process. This, at any rate, applies to the average case which comes under the care of the hospital physician, although it is quite possible, and even probable, that there are instances in which the infection is so mild and transient as to elude recognition. It is quite otherwise, however, with the Parkinsonian syndrome, a residual legacy of the initial disorder. Here there is no evidence of those fleeting disorders which at one time take the form of motor agitation, and at another the form of paralysis, delirium, lethargy, or sleeplessness. It may be the evidence of a neuronic irritation, but it does not suggest a recrudescence of the infection in its original form; yet neither does general paralysis, although it is an expression of infective activity. As a rule it makes its first appearance at varying intervals after the curtain has been lowered on the phantasmagoria of the earlier scenes. It commences gradually; it progresses steadily; and there would seem to be a method in the manner in which one part of the body after another is brought under the restricting influence of muscular hypertonicity. In the earlier stages and in milder cases the cortical motor power would appear to be able to overcome the resistance, but in the more advanced stages the contraction increases till the patient would seem to be held in a muscular vice.

EXTENT OF INVOLVEMENT OF MECHANISM OF EQUILIBRATION.

If the results of the vestibular tests warrant the assumption that the syndrome is due to an abnormality of the mechanism of equilibration, the question naturally arises whether or to what extent that mechanism is involved in the acute inflammatory stage of the disease. Microscopic examination of the brain in fatal cases reveals a very extensive infiltration and destruction of nervous tissue, more particularly in the basal structures. But there is no such predilection for special areas as would justify the assumption that the late effects are the direct results of local lesions. The uniformity of the clinical picture with its typical delineation from case to case suggests that the syndrome is the expression of abnormal reaction on part of some important compendium of reflexes. One is dealing not so much with the immediate results of neuronic destruction and neural dissolution as with the delayed and remote reaction of structures whose function in the harmony of nervous integration has been impaired. The syndrome supervenes after an interval of apparent recovery. It is not of the nature of a genuine recurrence, for it is not accompanied by any of the phenomena which distinguish the onset of the disease. Nevertheless a link does exist. If the absence of vestibular reaction possess the ætiological significance it would appear to indicate, then one might expect to find in the early stages of the disease some clinical evidence of disorder either of the apparatus itself or of some of the structures to which it is closely related. The vestibular tests during the acute phase show in some instances—e.g., Case 2—an exalted reaction. Giddiness, sickness, and nystagmus may be even spontaneous when the patient assumes a particular posture and disappear when that posture is changed. But these symptoms appear without any affection of hearing, and it is highly improbable that the vestibule and semi-circular canals could be the site of an inflammatory process which did not at the same time involve the cochlea. If, however, the receptor organ is not affected, the disturbance must be relegated to the important nuclei of correlation in the pons and medulla which subserve the functions of the peripheral apparatus. These nuclei are the secondary or terminal nuclei of the vestibular nerve (the primary neurones are on Scarpa's ganglion on the course of the nerve in the petrous bone). They occupy an extensive area of the rhomboid fossa (area acoustica) and extend as far forward as the caudal border of the main sensory nucleus of the trigeminal nerve, and as far backward as the rostral extremity of the nucleus gracilis. These central cellular masses of terminal neurones are described anatomically as divisible into four main nuclei: (1) Dorsal, median, or principal nucleus; (2) inferior spinal or descending nucleus; (3) superior or Bechterew's nucleus; and (4) lateral or Deiters' nucleus. Into these nuclei and into the cerebellum stimuli are poured from the reception terminals in the labyrinth. In the nuclei the stimuli are correlated and distributed according to their appropriate destinations and the functions they are supposed to perform. Fibres pass from the nuclei (1) to the motor nuclei in the brain-stem and to the anterior cornua of the cord through the vestibulo-spinal tract; (2) to the motor nuclei for the ocular muscles through the median longitudinal fasciculus; and (3) to the reticular formation of the opposite side across the median raphé. The nuclei themselves lie in close proximity to important medullary and pontine centres. On their medial aspect in front is the trigeminal nucleus, while more caudally lie the nuclei of the facial, glossopharyngeal, and vagal nerves. Their position in the brain-stem is therefore such that should they become the seat of pathological reaction, that reaction is likely to involve at the same time nervous centres which are concerned with the regulation of the vegetative systems of the organism. It is likewise reasonable to suppose that disorder of the vegetative centres, whether of an irritative, toxic, or inflammatory character, may also implicate the neighbouring nuclei of the vestibular apparatus.

There is, as a matter of fact, conclusive evidence that in the early and acute stages of lethargic encephalitis the vestibular and also the neighbouring nuclei participate in the production of the morbid phenomena. In the following case the clinical signs and symptoms could be ascribed, for the most part, to disorderly function of the vestibular nuclei.

CASE 2.—On March 21st, 1923, a married woman, aged 48, with previous good health, was seized suddenly with severe pain in back of neck and shoulders; power appeared to leave her legs; she fell to the ground and became very sick; vomiting and retching persisted for some hours, and when these symptoms ceased the pain became localised to the head and was so severe as to prevent sleep. Even pressure of head on pillow sufficed to elicit tenderness. On the following day there was twitching of muscles of face and neck. About 36 hours after onset of illness diplopia appeared, and there was an external squint on left side. Photophobia present during the first few days. There was no delirium. The temperature, 103° F. on the second day, subsided gradually in the first week. Giddiness has been a constant feature, and has been noted more particularly in certain positions. After the first few days she slept normally, and after regaining her sleep there was no pain.

Condition on Admission.—She was admitted to the Victoria Infirmary, Glasgow, on the 29th, when her only complaint was of giddiness and sickness, the symptoms appearing only when she lay on left side. Apart from an external squint in the left eye and twitching of the eyelids, nothing abnormal was noted.

On April 3rd, quite comfortable so long as she lay on her right side; still a squint and flickering of the eyelids; no paralysis or sensory disturbance; hearing, sight, and temperature normal. No visceral disorder, but as soon as she turned on her left side she felt very giddy and imagined that objects were turning from right to left. This was associated with spontaneous nystagmus to the right. On turning on to her back or right side, giddiness and nystagmus disappeared. Cold water in the left ear, while she lay on her back, produced in seven to ten seconds nystagmus to the right. It increased in intensity after cessation of the stimulus and was accompanied by severe giddiness and sickness. Nystagmus to the left from cold water in the right ear occurred in 30 to 35 seconds.

Had this illness not occurred at a time when encephalitis was epidemic, legitimate doubt might have been cast on the diagnosis. Such doubt, however, may be regarded as dispelled by consideration of the nature of the associated phenomena. The main feature of the condition, that is to say, the giddiness, sickness, and nystagmus, might quite well have been due to a hæmorrhage into the vestibular apparatus. The sudden onset with collapse and headache might have been explained on this assumption also. But when to these expressions of disease were added the squint and diplopia, the twitching of the facial muscles, the febrile disturbance lasting for the most part of a week, and with these the absence of any affection of hearing, the conclusion was justified that the pathological process involved the vestibular nuclei in the brain-stem. This conclusion was further confirmed by the abnormally sensitive character of the vestibular reaction to the caloric and postural tests.

The following case illustrates some of the peculiar phenomena which characterise the more severe forms of the disease in children. In the course of its development the reaction passes into a phase which suggested an affinity to the Parkinsonian syndrome in adults.

CASE 3.—H. M., a well-developed and intelligent although nervous lad, aged 14, had good health till Feb. 16th, 1923, when he complained of pain in the right shoulder, radiating up the right side of the neck to the right ear. The pain was severe and persisted during the course of the day. In the evening his parents noticed intermittent twitching of the right eye-lid, and later on the right side of the face. He spent a sleepless night, and on the following day spasmodic contractions of the facial muscles were more profound and almost continuous. Irregular grimacing contortions of the face were accompanied by jerky opening of the mouth and protrusion of the tongue. At night his voice was hoarse, and he became delirious and raved about Germans and bombs, and appeared to live through incidents he had witnessed in picture-houses. On the 18th the whole of the right side was affected, and he tossed himself about in bed, assuming extraordinary attitudes. He bit and tore the bedclothes, turned his pillow time after time, and got in and out of bed. Another restless delirious night was spent partly in shouting and partly in singing pieces of songs.

Condition on Admission.—On the 19th he was admitted to the Victoria Infirmary. Both sides of the body had now become involved in the motor agitation, and he was in a state of acute delirious excitement. At one period on the day of admission he appeared to suffer from fleeting hallucinations of different kinds. He was restrained in bed with difficulty. He wept, laughed, shouted, and sang alternately, and in his quieter moments he prayed "give me strength to kill my oppressors." For two days and two nights he remained in this excitable state; only occasionally during that period was it possible to obtain from him rational response to questions. It appeared as if the spasms of excitement occurred in phases with short intervening intervals in which he was comparatively lucid.

Course of Case.—On the 22nd he became more restful. The delirium passed off; the jerky, irregular movements continued, and he muttered in an incoherent manner, but his attention could be held with ease, and he answered simple questions intelligently and was well orientated in time and place. When his attention was held it was possible to induce cessation of the movements. An internal squint on the left side had now appeared, and he had diplopia. The temperature, 101·2° F. on admission, had gradually returned to normal. Apart from the involvement of the ocular muscle there was no evidence of paralysis, and sensation was normal. He remained perfectly quiet during the day, but at night he again became restless and delirious, although not to such an extent as on the previous nights. There was no complaint of pain since the day of the onset of illness.

On the 24th he was much quieter. The motor agitation had almost completely gone. He fed himself and was able to answer questions clearly, although somewhat slower than normal. His expression was dazed. He was inclined to be lethargic, and lay, for the most part, on his face. At night he was restless, turned the pillow about from time to time, and occasionally got out of his own bed and attempted to get into those of his neighbours. The squint and diplopia persisted, and there was spontaneous nystagmus to the right. His cerebro-spinal fluid was normal.

On March 12th he had gradually become quieter, and, although never in a deep lethargic state, slept for considerable periods during the day and night. His face had assumed a masked expression. He was cataleptic. Mentally he was quite clear, and there had been no sign of stupor or of other nervous disorders usually associated with catalepsy. His pulse, which varied from 70 to 90 per minute during the earlier stages of the disease, had varied from 50 to 60 per minute during the previous week, and on that day was registered at 40 per minute. There was no heart-block, and the circulatory system seemed to be normal in other respects. The catalepsy was associated with hypertonicity of the muscles.

On the 18th the cataleptic state persisted, and there was no mental abnormality. Patient slept well; squint still present; rapid, jerky movements of eye-balls as soon as eyes passed the middle line on either side. The periods during which these movements lasted varied from day to day and from time to time during the same day. They might last from 2 seconds to 20 seconds, and their rate appeared to be between 200 and 300 per minute. There was partial double ptosis, and the right pupil was wider than the left. Both pupils reacted to light and in accommodation; fundi normal; deep reflexes exaggerated; no sensory disturbance.

On the 30th the condition had varied but little since the 18th. The jerky movements on deviation of the eye-balls had diminished, and lasted but one or two seconds. At times there was only a slight flicker. The expression was still marked. There was a lack of ease and agility in his movements, and he was still cataleptic.

On April 5th there had been for three days no spontaneous nystagmus. The expression, however, was still masked. Patient dull, cerebration slow although quite clear; squint present. Cataleptic posture not so well sustained; definite catatonic resistance and rigidity in left lower limb; deep reflexes were exaggerated. So long as spontaneous nystagmus was present it was considered inadvisable to make vestibular tests. These tests now failed to reveal nystagmus by the caloric method.

Whatever may be the ultimate outcome in this particular case, there can be no doubt that already in the early weeks of the disease it exhibited not only an involvement of the structures related to the vestibular apparatus, but also a state of abnormal tonus akin to that which characterises the Parkinsonian syndrome.

While these two cases are selected from a series of 15 in order to demonstrate the occurrence of vestibular phenomena in the incipient phase of the disease, a review of the prominent signs and symptoms in the whole series indicates that these phenomena are by no means unusual. Thus, diplopia or squint was present in 14, spontaneous nystagmus in four, giddiness in five, revolving on the longitudinal axis of the body in three, and incoördinate motor agitation (including choreiform movements (six), twitchings (seven), and coarse general tremors (two)) in 15. Signs and symptoms referable to the nuclear centres in close proximity to the vestibular nucleus were noted as follows: Trigeminal neuralgia in six, vomiting in six, rapid respiration in five, slow pulse in two, rapid pulse in three, pain in neck and shoulder in five. There has been no opportunity to correlate the earlier with the later clinical features of the Parkinsonian cases, and attention has been directed to the vestibular phenomena in the recent epidemic in view of the fact that the labyrinthine tests in the sequelæ were a subject of observation at the time of the outbreak.

PATHOGENY OF THE PARKINSONIAN SYNDROME.

Two leading questions suggest themselves in considering the pathogenesis of a syndrome of this kind; these have reference to (1) the site and the character of the structural changes underlying the reaction; and (2) the nature of the perverted physiological processes responsible for the uniformity of the clinical picture.

(1) To the first question no satisfactory answer has been offered. This is not surprising when one considers the great variety of structural changes which have been described in paralysis agitans. In this condition regressive changes have been described in the corpora striata, thalami, substantia nigra, pons, and medulla. These admittedly are sites in which the lesions in acute encephalitis are found. But pathological degeneration of the same structures in other diseases does not give rise to clinical states which have a resemblance to the Parkinsonian syndrome. An instructive analogy may be found in general paralysis of the insane, a disease due to the particular manner in which a specific virus attacks the nervous system. Here also the uniformity of the clinical delineation from case to case is associated, not with any localised lesion, but with neuronic and vascular degeneration in the tissues of both the forebrain and brain stem. We have examined a number of brains from acute and from chronic stages of encephalitis, and the lesions have been so diffuse and so widespread as to preclude the possibility of formulating a specific correlation between the anatomical abnormality and the clinical disorder of function. Infiltration and degeneration of the vestibular nuclei (although accompanied by lesions elsewhere) have nevertheless been observed in several instances.

(2) It is no reflection on the value of histological investigation to suggest that the attempt to find an anatomical basis for clinical phenomena is often responsible for hasty and ill-considered conclusions. It is only on some occasions that it is possible to bridge the gulf between degenerate tissue and abnormal organic reaction by a process of satisfactory reasoning. In such well-recognised conditions as chronic heart disease, chronic nephritis, or general paralysis of the insane, the pathologist and the clinician are able to recognise the abnormal process each from his own point of view; there may be complete agreement between the two as to the concurrence and interdependence of the anatomical and clinical states, but the nature of the association between the states is usually a matter of conjecture.

In the Parkinsonian syndrome, the outstanding features of organic behaviour are the attitude of the patient, the muscular rigidity, and the impediment of voluntary movement especially of a rotatory character. In the absence of evidence of involvement of the cortico-spinal tracts attention is attracted to the complementary proprioceptive system. Examination of the vestibular apparatus shows that in a proportion of cases there is evidence of interference with the normal processes of somatic equilibration. The extent of abnormal reaction to the caloric and rotation tests seems to bear some relation to the degree of rigidity.

The significance of the vestibular tests may be estimated in the light of the principle of "associated phenomena" expounded by Mackenzie in his interpretation of the signs and symptoms of disease. The associated clinical phenomena in this problem may be divided into (*a*) those which are directly related to the system of equilibration, and (*b*) those which are related to nervous structures which lie in immediate proximity to the vestibular nuclei in the pons and medulla.

(*a*) There can be no doubt that in the acute phase of many cases of encephalitis the nervous structures which subserve equilibration are affected. Diplopia, squint, nystagmus, giddiness, rotatory movement, catalepsy without stupor, are all evidence of this. The absence of any affection of hearing precludes the likelihood of involvement of the internal ear, and the signs and symptoms are not such as are usual in disease of cerebellar origin. There is thus justification for supposing that the disorder is expressive of abnormal reaction on the part of the proprioceptive system which is represented in the vestibular nuclei of the medulla and pons.

(*b*) The associated clinical phenomena which have no reference to equilibration confirm this suspicion. The intensive trigeminal neuralgia, sometimes in the eye or in the ear or in the teeth, which marks the onset of the disease is probably due to affection of the trigeminal nuclei which lies in close relation to the vestibular nuclei. Respiratory disorder and vomiting may be referred to abnormal reaction of a compendium of medullary reflexes which is also in close relation to the vestibular nuclei. Excessive salivation, which is one of the most constant and most prominent signs of the Parkinsonian syndrome, must be associated with irritation of the salivary nucleus which lies also in close proximity to the vestibular nuclei. The tremor of the tongue, the defect in mastication and swallowing, and the lack of expression in phonation, are probably a local expression of the general motor disability, although they are so pronounced in some cases as to suggest a special implication of the pons and medulla.

If there is any justification for regarding the vestibular nuclei and their associated reflex arcs as a mediating centre in the production of the Parkinsonian syndrome, the question arises as to the manner in which they participate. The vestibular nuclei comprise the secondary or terminal neurones of the vestibular apparatus. They bear the same relation to the vestibular portion of the internal ear as do the trigeminal nuclei to the skin and mucous membranes supplied by the fifth nerves. They are the centres of correlation for stimuli induced in the internal ear through movements of the body in space, just as the trigeminal nuclei are centres of correlation for stimuli of exteroceptive origin impinging on its area of distribution. The fifth nerve has to do with the conduction of stimuli for touch, pain, heat, and cold, while the vestibular nerve is concerned exclusively with the conduction of stimuli which induce a state of muscular tonus indispensable to the maintenance of somatic equilibrium. Under physiological conditions the trigeminal nucleus is stimulated from the mucous and cutaneous surfaces of the head; but it may be, and usually is in pathological states, subjected to irritation of central origin. For example, the headaches of fever, migraine, epilepsy, neurasthenia, and biliary colic are associated with either toxic or excessive irritation of the trigeminal compendium, and the site of stimulation is not the periphery but the central or terminal nuclei in the medulla and pons. There is no necessity to labour this point in demonstration of which a great mass of clinical evidence could be adduced. There is reason to believe that the vestibular nuclei may also become "foci of irritation" (Mackenzie) or sites of abnormal reaction from stimuli which impinge on them, not from the vestibular apparatus but from sources of central origin. The frequent occurrence of headache and vomiting with giddiness is indicative of the proclivity of medullary centres to become the seat of aberrant irradiation of neural stimuli in whose clinical manifestations reaction of the vestibular nuclei plays an important part. Giddiness is only one of the by-products of abnormal vestibular recoil; it is the resonance in consciousness of the irregular behaviour of vestibular structures which in the normal course of events make no appeal to the higher centres of the brain. The vestibular nuclei are the main centres of correlation of the afferent stimuli of the proprioceptive system; in this capacity they are in close functional relationship with the internal ear, the eyes, the cerebrum, the red nucleus, and the cerebellum. Hughlings Jackson and Sherrington have laid the clinical and experimental foundation of observations which show that this system contributes to the coördination of somatic movement by the influence it exercises on muscular tone. In the posture of post-hemiplegic and decerebrate rigidity it plays its rôle by the production of abnormal muscular tonus. It is suggested here that abnormal irritation of the vestibular nuclei and their associated structures is responsible for the pathological features of the Parkinsonian syndrome. This conception, while it explains the rigidity, accounts also for the increased salivation and for the absence and abnormality of vestibular reactions in the more advanced stages, in which stimuli from the ear cannot be correlated in nuclei which are already in a state of pathological activity. There is probably a close analogy between the persistent headaches which follow influenza and the rigidity which is so prominent a sequela of infective encephalitis.

I am much indebted to my colleague Dr. Hector M. Walker for his assistance in this research.

[Since this article was written an important communication on "Lethargic Encephalitis and Herpes Febrilis" has appeared, in *Brain*, by Syzmanowski and Zylberlast-Zand.[4] They find that "in animals (rabbits infected with emulsion from cases of lethargic encephalitis) the most common symptoms are abnormal position of the head, circus movements, nystagmus, and oscillating movements of the head, that is, symptoms of labyrinthine involvement." In their microscopic findings they note that "the rabbit No. 31 helped to determine the origin of the labyrinthine symptoms," so often met in their investigations. They say that "no inflammatory changes were discovered in the brain tissue except in the nucleus of the nervus vestibularis and in the tuberculum acusticum. The cells of the vestibular nucleus were degenerated. Slight changes were also found in the cells of Deiters's nuclei and in the nuclei of the floor of the fourth ventricle, but the cells of the cerebellum, red nuclei, and nuclei dentate were not affected."]

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AN IMMUNITY REACTION IN SCARLET FEVER.*

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In 1918 Schultz and Charlton[1] described the following phenomenon in connexion with scarlet fever (I give a free translation of their words): "If one injects intracutaneously into the skin of a scarlet fever patient with a bright rash 1 c.cm. of serum from a normal person, or from a convalescent case of scarlet fever, there appears, after a time, at the site of the injection, a characteristic change. This begins after about six hours, and consists in a complete blanching of the rash over an area of from half an inch to a few inches in diameter. The area of pallor is usually circular or oval in shape, the margin being as a rule only slightly irregular. In the affected area the swollen follicles, which are a feature of many rashes, disappear. Looked at from a little distance, the margin of the defect in the rash is generally pretty sharply defined. In one case we saw the contrast between the pale area and the surrounding rash heightened by a markedly hyperæmic margin. The colour of the blanched area is that of the normal skin. The duration of the phenomenon coincides, on the whole, with that of the rash itself; at any rate, it may remain quite visible for several days."

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* A paper read to the Fever Hospital Medical Service Group of the Society of Medical Officers of Health, Nov. 23rd, 1923.

Schultz and Charlton found that this reaction could be obtained in the great majority of scarlet fever cases with a sufficiently well developed rash. For a series of 46 cases they report 40 positive reactions, five being doubtful and one negative; but they state, without giving particulars, that they have since obtained a higher percentage of negative results. They do not mention the source of the serum used in the tests, but merely say that they could detect no qualitative difference between the action of convalescent scarlet fever serum and that from normal persons. On the other hand, the serum from scarlet fever patients during the acute stage of the illness invariably gave negative results. They tested the serum of a number of scarlet fever cases taken at different stages of the disease and give the results shown in Table I. Apparently all the sera were from different individuals.

TABLE I.

Day of disease.	No. of cases tested.	Result.	Day of disease.	No. of cases tested.	Result.
1st	2	0	16th	1 1	0 +
2nd 3rd	1 3	0 0	17th	1 2	0 +
4th–13th	14	0	18th	1 2	0 +
14th	2 1	0 +	19th	2	+
15th	2 1	0 +	20th 21st	1 3	+ +

They conclude that the serum of the scarlet fever convalescent "recovers its lost power of blanching the rash between the fourteenth and nineteenth days of the disease." Thus Schultz and Charlton assume that their reaction is due to a normal property of human serum which is temporarily lost during the acute stage of scarlet fever, to be regained during convalescence. I shall show later that this is an unwarranted assumption. In the meantime, it may be noted that according to their own observations we should have to suppose that this mysterious property of normal serum disappears suddenly with the onset of scarlet fever. It is absent even on the first day of illness.

Implied Serological Means of Diagnosis.

Although Schultz and Charlton are in general very restrained and cautious in their attitude, and do not even suggest any practical application of their reaction in diagnosis, their unfortunate assumption as to its nature is, I think, partly responsible for a fallacy which has appeared in the work of their immediate followers. If their assumption were true, then obviously we should have a serological means of diagnosing cases of scarlet fever; a serum which does not give the reaction must be that of a patient in the acute stage of the disease.

This position has been adopted uncritically by Paschen,[2] Neumann,[3] and others. Although Paschen had the opportunity of testing the serum of a child five days before she developed scarlet fever, and found it negative, this did not shake his faith in the dogma. It was for him merely a puzzling exception to the rule. Paschen tested 71 scarlet fever rashes and found the reaction positive in 62; the source of the sera used is not mentioned. Neumann tested the sera of 23 scarlet fever convalescents and obtained positive reactions in all but three; he attributed the failure in these three cases to the fact that the rashes faded too soon. He noted that a serum which gave a positive reaction in one rash might fail to do so in another. Thus four sera tested on different rashes gave:—

Sera	+	0	Sera	+	0
2	3	1	1	1	1
1	2	1			

He tested the sera of 59 cases of scarlet fever within the first four days of the disease and found that of these only three gave the reaction. The sera of three children with rubella gave a negative reaction, and Neumann also regards these as being "remarkable exceptions" to the rule. In spite of these findings, Neumann formulates explicitly the rule for the diagnosis of doubtful cases of scarlet fever on this basis. If the serum gives a positive Schultz-Charlton reaction it is *not* from a scarlet fever case (presumably in the first fortnight of the disease); if the serum does not give the reaction it *is* from a case of scarlet fever.

Mulsow[4] tested the serum of acute cases of scarlet fever, convalescents and normal persons, giving the results separately. Omitting two cases where the reaction was doubtful, he found the sera from eight scarlet fever cases in the acute stage negative, the sera of six scarlet fever convalescents positive, and among the sera of seven normal persons one negative. His observations also show that a serum which gives a positive reaction with one rash may give a negative reaction with another. Mulsow rightly concludes that a negative reaction can give no help in the diagnosis of scarlet fever in the patient from whom the serum was obtained.

The observations of Tron[5] are much at variance with those of all others who have worked at the subject. It is possible that his standard of what constitutes a positive reaction is higher than usual. In 17 scarlet fever convalescents after the third week he obtained only 10 positive results; 15 cases of scarlet fever in the acute stage were negative; among 16 cases of follicular tonsillitis and laryngeal catarrh he found two positive, and among 12 cases of diphtheria four positive.

As regards the specificity of the test for the scarlet fever rash Table II. shows the number and nature of other rashes which have been tested by the intracutaneous injection of serum, all with negative results.

TABLE II.

Authors.	Measles.	Influenza.	Paratyphoid	Erythema.	Serum rashes.	Drug rashes.
Schultz and Charlton ..	11	—	—	2	—	2
Paschen	1	2	2	3	1	3
Neumann ..	3	—	1	1	3	4
Total ..	15	2	3	6	4	9

Inquiry into Nature of Schultz-Charlton Reaction.

About a year ago Dr. E. W. Goodall drew my attention to the Schultz-Charlton reaction, and with his help, and that of Drs. F. H. Thomson and C. E. Matthews, I have been making some inquiries into its nature. I am also particularly indebted to Dr. J. W. Mann, of the North-Eastern Fever Hospital, for his assistance in carrying out some of the tests.

There is no doubt that the reaction, when well marked, is a very striking phenomenon. As regards its appearance, there is little to add to the description given by its discoverers. One point of interest should, however, be noted. Where there is early and profuse desquamation the blanched area may remain visible for a week or more, being clearly marked off from the surrounding skin by the absence of desquamation. Schultz,[6] in a later paper, also notes this condition and emphasises the fact that the blanched area is an area of normal skin, as shown by the absence of exudative phenomena (sudamina and swollen papillæ) when these occur, as well as by the disappearance of the rash. In these well-marked reactions one cannot resist the impression that the injection of the serum has completely suppressed the whole sequence of pathological events which are occurring in the skin elsewhere. But these striking reactions are somewhat uncommon; the area of pallor does not always persist till the rest of the rash has disappeared; sometimes the rash reappears after an interval, and often it never completely disappears from the area affected. In the latter case it may be difficult to decide whether or not there has been any reaction. With regard to the time at which the reaction first appears, there is considerable variation. I have not seen it as early as the six hours mentioned by Schultz and Charlton, and it is certainly sometimes better marked after 24 hours than earlier.

A Toxin-Antitoxin Phenomenon.

From the beginning I have thought it likely that in the Schultz-Charlton reaction we have to deal with a toxin-antitoxin phenomenon; and the justification of the title chosen for this paper is that, after a study of the literature and consideration of our own results, I still think that this is the most probable explanation of the facts. I have shown elsewhere [7] that there is reason to believe that in scarlet fever there is concerned a toxin which presents certain points of resemblance to that of diphtheria. We have to suppose that the rash and other changes in the skin are due to a scarlatinal toxin which has entered into combination with the tissue cells; among the affected cells are those contractile elements which have been shown to exist even in capillary blood-vessels [8] and to the function of which the normal tone of the capillaries is due. The toxin interferes with the function of these cells and a loss of tone of the capillaries results in the erythema and exudative phenomena with which we are familiar in the scarlatinal rash. The serum injected, when it gives a positive reaction, we suppose to contain an antitoxin which is able to dislodge and neutralise the toxin fixed in the cells, and so to restore their normal function in the area affected. The period of delay, 12 to 24 hours, in the appearance of the reaction, is no doubt due to the fact that the toxin is attached to the cells, and some time is thus required for its neutralisation. When the rash fades in a normal manner the mechanism is probably different as this occurs long before any antitoxin can be demonstrated in the patient's blood.

Now diphtheria is a disease which in many other respects exhibits analogies and even relationships with scarlet fever. It is known that over 80 per cent. of so-called normal adults have appreciable amounts of diphtheria antitoxin in their blood, but we do not therefore assume that the diphtheria patient has antitoxin in his blood before he is attacked, and that he suddenly loses this antitoxin on the first day of the disease. It is, of course, known that the diphtheria patient has no antitoxin, or only inappreciable traces, in his blood before he is attacked by the disease, and the same is no doubt true of scarlet fever. The reason for the negative Schultz-Charlton reaction given by the serum of scarlet fever patients in the first fortnight of their illness is simply that the necessary antitoxin has not yet had time to develop. It follows that when the serum of a so-called normal person is found to give the reaction, this means, just as in the case of diphtheria, that the individual in question has acquired at least a certain degree of immunity to scarlet fever, either by an attack of the disease, or by an atypical illness which could not be diagnosed as such, or possibly by a series of sub-infective immunising doses, or by a combination of these events.

In diphtheria we have to deal with a known toxin and antitoxin which can both be accurately measured, and the Schick test gives an easy means of estimating, at least approximately, the amount of antitoxin in the blood of any individual. In scarlet fever, we are dependent, as yet, on casual occurrences in nature for our test toxin. This, fortunately, manifests itself in the scarlet fever rash in a form which is not altogether unsuitable for the demonstration of antitoxin, but which leaves much to be desired from a quantitative standpoint. We are dealing with two unknown variables, the amount of toxin to be neutralised, and the amount of antitoxin available for its neutralisation.

Differing Reactions of Same Serum in Individual Cases.

Let us now see how this hypothesis, founded on what is known in regard to an analogous disease, agrees with the facts. It was desired in the first place to ascertain how the same sample of serum reacts when tested on different scarlet fever rashes; 5 c.cm. of blood were taken from each of 14 scarlet fever convalescents in the fifth week or later. The sera after separation were pooled and distributed in ampoules in amounts of about 1 c.cm. This pooled serum was tested on 18 different rashes; 14 of these gave a positive, 1 gave a negative reaction, and in 3 no reading was possible owing to the whole rash having disappeared. The one case where no reaction was obtained was a very severe case with persistent rash which became brighter on the fourth day. The test was made on the fifth day of the rash. On the sixth day the patient was still delirious and the rash bright, but she made a good recovery without complications. In this case there was probably more toxin present than could be neutralised by the serum injected. Other observers have noted that in a case which subsequently proved fatal the rash was not blanched by the injection of serum (Wöhlisch and Mikulicz-Radecki [9]).

The serum from a normal adult, with a history of scarlet fever in childhood, was tested on eight cases; in seven it gave a positive reaction and in one a negative. The case which gave the negative reaction had a coarsely punctate rash with little or no diffuse erythema. This type of rash does not appear to be suitable for the test. With both these sera it was noted that the degree of the reaction varied much from case to case, although the same amount of serum was injected.

Twelve samples of serum from scarlet fever convalescents were now tested separately on a number of different scarlet fever rashes with the results shown in Table III.

Table III.

Sera.	+ Cases	0	Sera.	+ Cases	0
1	2	0	7	2	0
2	4	0	8	4	0
3	2	2	9	1	1
4	4	0	10	4	0
5	4	0	11	2	0
6	3	1	12	3	0

Again, it was noted that the reaction of a given serum varied considerably in degree according to the rash on which it was tested. It follows from these observations that in testing any serum a single distinct positive result is of value and can be accepted as indicating that the serum in question contains antitoxin whereas a serum can be shown to be negative only if it has been tested on a number of rashes, or better, if it has been tested on a case which has at the same time given a clear positive reaction with another serum. We can compare one serum with another, by testing both on the same rash, but owing to the variability of the test object we cannot, strictly speaking, do more than this in the direction of a quantitative estimation.

In order to find at what period of convalescence the reaction develops in the serum of the scarlet fever patient, some observations were made with the serum of the same patients taken at different times. As a rule, the sera taken on different days from the same case were tested on the same rash and could thus be compared quantitatively. The results are shown in Table IV.

Thus the time at which the reaction appears varies in different patients. It is not always found as early as the twenty-first day, and there is evidence of an increase in the degree of the reaction during the fourth week. The sera of three other cases in the first week gave negative reactions. Seven other scarlet fever convalescents were examined during the fifth week or later, and all their sera gave positive reactions. The sera of all the 25 convalescent cases examined were therefore positive.

TABLE IV.

Case.	Negative.	Positive.	Case.	Slight.	Well-marked.
1	3rd day	15th day	5	15th day	25th day
2	3rd ,,	18th ,,	6	20th ,,	29th ,,
3	7th ,,	17th ,,			
4	21st ,,	38th ,,			

Now, if our hypothesis be true, it should be possible to find individuals whose serum does not give the reaction, although they are not at the time suffering from scarlet fever either in the acute stage or in the early weeks of convalescence. At an early period I was able to satisfy myself that the serum of a healthy boy, aged 10, was quite without the property in question. This serum was tested on four rashes with negative results, two of which at the same time gave positive reactions with another serum.

A Question of Immunity.

Later, by a fortunate chance, I was able to test the serum of a girl, aged 5, a convalescent diphtheria case, who was attacked by scarlet fever four days after the sample of blood was taken. This serum gave a negative reaction. Another sample was taken on the thirty-eighth day from the onset of scarlet fever, and her serum now gave a positive reaction. This amounts to a demonstration that the property of the serum which gives rise to the Schultz-Charlton phenomenon is one which can be acquired as the result of an attack of scarlet fever; and this fact alone would appear to make it extremely probable that we are dealing with a question of immunity. It is, in fact, quite easy to find children of the ages at which scarlet fever is common whose sera give negative reactions. Not including the two negative cases already mentioned, I have found, among 13 children, seven whose sera were negative. One of these was in the acute stage of measles, one was a measles convalescent, and the remaining five were diphtheria convalescents. Of the six cases whose sera were positive, four were diphtheria convalescents, and two were cases of erythema, where the positive Schultz-Charlton reaction was of value in confirming the negative diagnosis as regards scarlet fever. In none of the children was there any history of scarlet fever.

In this connexion it appeared that it would be of interest to examine the blood of newly-born infants. Through the kindness of Miss Mocatto I was able to obtain from Queen Charlotte's Hospital four samples of blood from the umbilical cord, with corresponding samples of the maternal blood. These were tested in pairs on the same rashes with very interesting results. In each case the serum of the new-born child gave an exactly similar reaction to that of its mother. In two of the cases distinct positive reactions were observed. In one of these the mother gave a history of previous scarlet fever. The other two gave such feeble and indefinite reactions that it was doubtful whether they should not be classed as negative. The scarlatinal antitoxin, therefore, behaves like that of diphtheria, in passing through the placenta from mother to child, in such a way that the titre of the two sera is identical.

With regard to adults, it seems probable that the proportion of positively reacting sera is high; I have few personal observations, but if it were not so it would be difficult to understand the attitude of previous writers on the subject, who have not thought it worth while to distinguish between the serum of "normal persons" and that of scarlet fever convalescents in giving their results. Omitting the maternity cases already referred to, I have examined the sera from nine adults with eight positive results and one negative.

In three of the positive cases there was a history of scarlet fever many years before; five of the cases were nurses in scarlet fever wards with no history of scarlet fever; one of these gave a negative reaction; the other four gave very well-marked positive reactions. The occurrence of these marked reactions in nurses exposed to frequent and close contact with scarlet fever patients certainly suggests the possibility of immunisation without a definite attack of the disease. The remaining case was one of enteric with a rash which was probably the result of enemata; here again the positive reaction was of assistance in excluding the diagnosis of scarlet fever.

Technique of the Reaction.

A few points in the technique of the reaction may now be noted. A positively reacting serum may be heated for half an hour at 55° C. without impairing its power. It may also be stored for long periods in the cold room without alteration. I have obtained positive reactions with sera kept thus for nine months. As regards the quantity of serum to be injected, this should be at least half a cubic centimetre, although some sera give the reaction in smaller amounts. In the observations described above the amount of serum used was from 0·7 c.cm. to 1 c.cm. This seems a large amount to be injected intracutaneously, but experience has shown that after the prick of the needle and the injection of the first few tenths of a cubic centimetre, the remainder of the injection causes the patient no discomfort.

It is hardly to be expected that a complete demonstration of the nature of the interesting phenomenon to which I have called your attention can be obtained until we know something more of the cause of scarlet fever. In the meantime, the evidence in favour of the toxin-antitoxin hypothesis is, I think, sufficient to justify us in undertaking a more extensive investigation of the phenomenon from this point of view. Such an investigation would, no doubt, throw light on the epidemiology of scarlet fever, just as the Schick test has done in the case of diphtheria. In another way, also I think, the reaction is likely to help in the elucidation of the ætiology of scarlet fever. Claims are put forward from time to time that a particular organism, isolated from the throat or elsewhere, is the cause of scarlet fever. The fact that no experimental animal can be found which is susceptible to scarlet fever, in the sense of showing all the symptoms of the human disease, has proved a barrier to the proof or disproof of these claims. If, however, our hypothesis is correct, it seems highly probable that the true causal micro-organism will be capable of producing a toxin, and, by the immunisation of animals, an antitoxin, of which the latter should give the Schultz-Charlton reaction in man.

It would be well to maintain an attitude of reserve towards the claims put forward for any particular micro-organism until it has been shown to be capable of producing such an antitoxin.

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ON IMMUNO-TRANSFUSION.

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(Concluded from p. 1334.)

Procedure Employed for Drawing Blood from the Donor and Defibrinating It.

Apparatus Required.—This is shown in Fig. 1.‡ A needle, about two feet of rubber tubing, and a short piece of glass tubing, serve to conduct the blood from the donor's vein to the bottle. The latter is of about one litre capacity, and is fitted with a rubber bung. Through the centre of the bung is passed a glass rod, bent at its lower end in the form of a U, which is intended to collect the fibrin clot during defibrination of the blood. The escape of air from the bottle as the blood runs into it is provided for by a third hole through the bung. This is lightly plugged with cotton-wool (A). Attention may be called to three points of detail: (1) The bore of the needle should be not less than 1½ mm.—with this size it is usual to draw off 500 c.cm. of blood in four to six minutes. A smaller needle might become partially blocked with clot before the bleeding was completed. (2) The glass tube admitting the blood to the bottle should not extend more than an inch or two below the bung. In this position we can easily observe the rate of flow from its orifice. (3) When the bottle and its connexions are kept sterilised for use in an emergency, the needle should be detached and sterilised independently—otherwise it will rust.

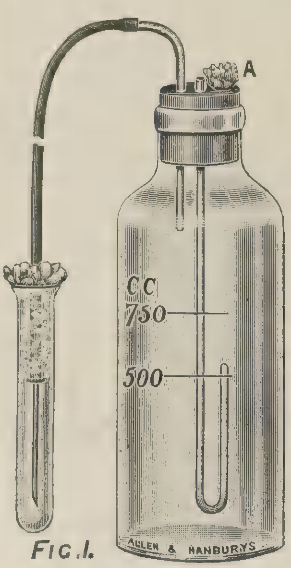

FIG. I.

Apparatus employed for drawing blood from the donor and defibrinating it.

Technique of the Bleeding Operation.—Our practice has followed closely the description given by Fleming and Porteous (The Lancet, 1919, i., 973) to which the reader is referred. It has never been found necessary to incise the skin and expose the vein of a donor. Two points only seem to us to require emphasis—viz., the importance of obtaining at the outet the proper degree of venous congestion by the tourniquet, and of maintaining this, so long as the blood is flowing, by the donor's muscular efforts. He should be instructed to close the fist tightly and relax again five or six times a minute. This simple but effective trick is often forgotten.

Defibrination of the Blood.

Our aim is to obtain the blood in a permanently fluid form with nearly its normal content of corpuscles—in particular, of white corpuscles. In other words, we must so arrange things that the great bulk of the corpuscles are not caught up in the fibrin meshwork at the moment of clotting. To secure this result we keep the blood continuously in motion around a rigid scaffolding on which the fibrin filaments as they form become very rapidly entangled. The scaffolding is provided in our apparatus by the glass U. Our procedure is as follows: Commencing not later than one and a half minutes after the blood first begins to flow into the bottle, we move the latter without ceasing in a rotatory fashion and fairly briskly until at least six minutes after the needle is withdrawn from the vein. As stated above the time usually taken to collect 500 c.cm. of blood is 4 to 6 minutes. Shaking of the bottle has, therefore, to be kept up for 10 to 12 minutes. The fibrin clot in blood treated in this way is found tightly adherent to the glass U. Its volume is about 10 to 20 c.cm. for 500 c.cm. of blood. The fluid blood retains practically all its red corpuscles, and 70 to 75 per cent. of its leucocytes.

On the Question of Keeping the Donor's Blood for Some Hours Before Injection.

This question is of some practical importance. The results already obtained allow one to hope that immuno-transfusion will prove of value in the treatment of fulminating septicæmic conditions such as acute puerperal fever, osteomyelitis, &c. If this expectation is justified it is important that the method should be made available at short notice for patients in the country as well as in the cities. This will be possible if it can be shown that the quality of the blood does not undergo appreciable deterioration within three or four hours of its being withdrawn from the donor. At a summons by telegram or telephone a donor could be chosen from a register kept in cities and large towns, immunisation and bleeding could be carried out by someone familiar with these procedures, and the blood could be transported without delay to the patient's bedside perhaps many miles away.

The following experiments bear upon this matter. They were undertaken to show whether the bactericidal efficiency of the blood—for it is with this property that we are chiefly concerned in carrying out an immuno-transfusion—becomes diminished on keeping it, and also whether such diminution is dependent upon the temperature at which the blood is kept. A normal individual was inoculated subcutaneously with staphylococcus vaccine. Specimens of blood were taken before the inoculation and four hours after, and each was defibrinated. The specimen taken four hours after inoculation was divided into two parts, one being incubated at 37° C., the other kept at room temperature. Tests of the hæmo-bactericidal efficiency were carried out (by the method of "slide cells," as in experiments 1 to 7) with the bloods taken before and after inoculation, and also with the latter sample after it had been kept for stated periods at the different temperatures. The results were as shown in Table IV.

TABLE IV.

Blood of—	Number of colonies which grew in :—	No. of Staph. implanted in the blood (as determined by an agar count) : *(882)	(294)	98
L. C., inoc. with 500 mill. Staph.	Blood taken before inoculation	47	18	5
	Blood taken 4 hr. after inoculation and tested immediately	11	9	2
	Same blood tested after standing :			
	1 hr. at room temperature ..	27	11	5
	1 hr. at 37° C.	40	10	5
	4 hr. at room temperature ..	34	13	4
	4 hr. at 37° C.	29	12	7
E. J. S., inoc. with 750 mill. Staph.	Blood taken before inoculation ..	92	27	11
	Blood taken 4 hr. after inoculation and tested immediately	25	5	4
	Same blood tested after standing :			
	1 hr. at room temperature ..	20	5	1
	1 hr. at 37° C.	14	2	2
	4 hr. at room temperature ..	49	16	4
	4 hr. at 37° C.	26	13	2

* The figures given in brackets represent calculated, not actual, counts.

As these two results did not give very clear indications a third experiment was carried out by Dr. H. B.

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‡ Messrs. Allen and Hanburys are prepared to supply the complete apparatus.

Maitland. The plan of this experiment differed slightly from the foregoing in that, at each testing, the blood was implanted in bulk with living Staphylococci, and *several* 50 c.mm. samples were transferred to slide cells for incubation. Experimental errors were in this way minimised. The result obtained was as shown in Table V.:—

TABLE V.—*Blood of E. J. S., Inoculated with 1000 Million Staphylococci.*

—	No. of Staph. implanted in blood (as determined by agar counts).	No. of colonies which grew in the blood.	Percentage of Staph. which survived in blood.
Blood taken before inoc. . .	198	28, 44, 37, 44 } aver. 44, 53, 46, 60 } 44	22
Blood taken 4 hr. after inoc. and tested immediately	177	19, 12, 6, 3, } aver. 7, 9, 5, 10 } 9	5
Same blood tested after-standing: 1 hr. at room temp.	155	3, 6, 10, 10, } aver. 7, 5, 16, 16 } 9	6
1 hr. at 37° C. . .	142	6, 8, 6, 12, } aver. 15, 8, 13, 7 } 9	6·6
4 hr. at room temp.	745*	17, 13, 12, 16, } aver. 30, 36, 42, 27 } 24	3·2
4 hr. at 37° C. . .	686*	36, 49, 44, 29, } aver. 38, 36, 34, 29 } 37	5·4

* A different staphylococcal emulsion was here employed.

The results set out in the last column of the table show—and this experiment carries more weight than the other two by reason of the multiple sampling adopted at each test—that an "immune" blood loses little, if any, of its bactericidal efficiency on being kept for periods up to four hours, either at room temperature or at 37° C.

We conclude, then, that it is permissible, if circumstances require it, to allow a period of several hours to elapse between the bleeding of the donor and the transfusion of the patient, and that it is not necessary to keep the blood warm during the interval.

With regard to this last point it will, perhaps, be urged that, quite apart from any question of deterioration of the quality of the blood, it is manifestly desirable that this should be warm when it is injected into the patient. We would suggest that this consideration is probably of very little importance. The stream of blood which we inject into the patient is so small in relation to the very large volume of venous blood with which it is almost immediately mixed in the great veins and the auricles, that it can have only an extremely small effect in reducing the temperature of the whole circulating blood.

Procedure for Injecting the Blood into the Patient.

To drive the blood out of the bottle into the patient's vein a positive pressure is required. This may be obtained (*a*) by gravity, using the "funnel-and-tube method" for the injection; (*b*) by means of an air pump of the Higginson type, as recommended by Robertson,[8] Fleming and Porteous,[9] and others; (*c*) by means of a syringe acting as a combined suction and force pump, as recommended in 1911 by Fleming and Colebrook[10] for the injection of "606."

We have never employed the first method. It serves well enough, no doubt, if one exposes the patient's vein and ties in a cannula, but it may lead to difficulties when one dispenses with that unnecessary procedure and simply injects the blood through a needle. The patient's veins, when immuno-transfusion is required, are often partially collapsed, and one cannot always be sure of plunging the needle directly into the lumen, or of keeping it in that position throughout the operation. In these circumstances it is of the utmost importance that the pressure system should enable us at the commencement of the operation, or at any moment subsequently, to satisfy ourselves that the point of the needle is rightly placed. We need assurance also that its lumen has not become blocked during the progress of the injection. These requirements are met: (*a*) If the injecting apparatus allows us to suck blood back through the needle at will; and (*b*) if we are continually informed that the blood is flowing satisfactorily from the apparatus into the vein. For both purposes the funnel-and-tube system is ill-adapted.

The same criticism applies to the air-pump method which we used for several months. If all goes well it works admirably, but if we fail at first to lodge our needle in the lumen of the vein—or if, subsequently, some obstruction develops owing to the formation of clot in the needle, this pressure system is found to be lacking in adaptability and control. We come then to the third method, which has proved, in our hands, the most satisfactory. The proposal to adopt it for the purpose of transfusion came from our colleague Dr. Alexander Fleming. Although at first sight it may appear a little complicated, a few minutes' practice with it will suffice to put the operator at his ease.

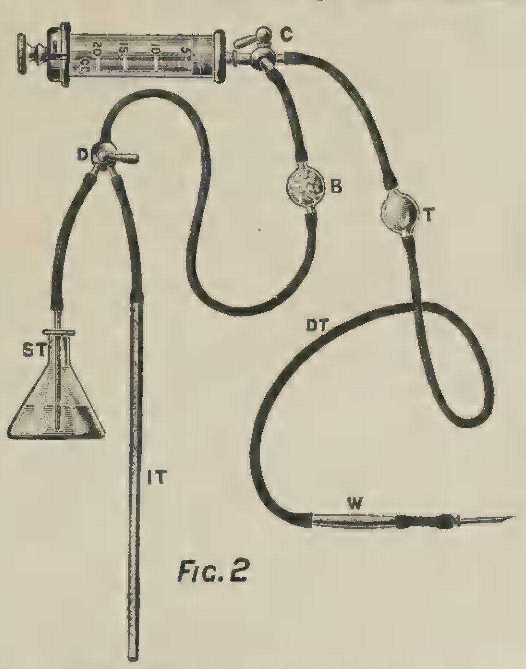


FIG. 2

Apparatus employed for transferring the defibrinated blood from the bottle to the patient's vein.

Apparatus Required.—This is shown in Fig. 2. The essential features consist of a record syringe connected by means of a two-way tap (C) with (I.T.) a thick-walled rubber tube and glass connexion through which the blood is sucked up out of the bottle into the syringe (the "intake tube"); and (D.T.) a second thick-walled rubber tube fitted with a needle—the delivery tube—through which the blood is driven from the syringe into the patient's vein. To these essential features are added one or two simple contrivances which make for convenience and safety in carrying out the injection. They are as follows: (1) On the intake tube is incorporated a glass bulb (B) loosely fitted with glass-wool (*not cotton-wool*, which would soon obstruct the flow of blood). This is intended to catch any small fragment of clot which might be free in the blood. Probably it is unnecessary. We have never seen such loose fragments of clot. (2) On the delivery tube is incorporated another glass bulb (T) which serves as an air trap. If a few bubbles of air should be unwittingly driven over from the syringe with the blood they will lodge in the convexity of this trap while the blood passes along to the needle. (3) At (D) a second two-way tap is introduced, giving connexion by rubber and glass tubing (ST) to a bottle of sterile physiological salt solution. This provision enables the operator, at the commencement of the injection or at any time subsequently, to fill the delivery tube with salt solution in place of blood. (4) A short piece of glass tubing (W) inserted near the end of the delivery tube serves as a window, the purpose of which will appear when we describe the technique of the injection. (5) Connecting the needle with the end of the delivery tube is a metal " adapter."

Attention may be called to some points of detail in connexion with this apparatus: (*a*) If the syringe is sterilised by sucking hot oil (120° C.) into it it will work much more smoothly than it will after being boiled. (*b*) The needle should be considerably smaller than that employed for taking blood from the donor. A bore of about one millimetre will be suitable. At the risk of pointing out the obvious, we would urge that the operator should not take for granted that its point is sufficiently sharp. If he wishes to avoid trouble he will himself examine it with a hand lens, and, if necessary, touch it up on a fine sharpening stone. (*c*) It is well to ascertain, before commencing the injection, that the nozzle of the syringe makes a tight joint with its two-way tap. (*d*) The joints between rubber tubing and glass, and also those connecting the tubing with the two-way taps, should be secured with a turn of thin wire or a ligature—otherwise, after being sterilised several times, they may leak.

Technique of the Injection.—The sterilised apparatus is first assembled at the bedside, the syringe being connected with its two-way tap (C), the glass tube I.T. being put into the blood through the hole in the bung which until now has been closed with a cotton-wool plug (A), and the other tube (S.T.) placed in the flask of salt solution. The next step is to fill the whole system of tubes—and also the syringe half full—with salt solution. (In order to expel the air from the delivery tube the needle end must, of course, be held up at arm's length while salt solution is driven into it from the syringe.) This done, we are ready to commence the injection. While an assistant compresses the upper arm with his hand (this arrangement is preferable to the use of a tourniquet, as the pressure can be released more promptly and with less risk of dislodging the needle) the operator inserts the needle into the vein at the elbow. As soon as he thinks its point is well in the lumen of the vein a second assistant, in charge of the syringe, pulls lightly on the piston until blood appears at the glass window (W). With this assurance that his needle-point is correctly placed, the operator, still holding on to the needle himself, gives the word for the compression of the upper arm to be released and the injection to begin. A few cubic centimetres of salt solution are first injected in order to give renewed assurance that the needle is still in the vein. The assistant in charge of the syringe then turns the tap C from the delivery tube to the intake tube, and the tap D from the tube S.T. to the tube I.T. and proceeds to fill the syringe with blood. This done he turns the tap C back towards the delivery tube and injects the blood into the vein. By alternate filling and emptying of the syringe in this manner the transfusion is completed. One difficulty only is likely to arise after the needle is satisfactorily lodged in the vein. If, for any reason, there is delay in commencing the injection—or if this is interrupted—a little blood may flow back from the vein into the needle and delivery tube, and, clotting there, prevent or impede the further progress of the injection. The operator has only to be aware of this possibility to avoid its occurrence.

In conclusion we would emphasise the desirability of injecting the blood slowly. On one occasion when we were using the Higginson pump apparatus, most distressing symptoms were caused by inadvertently hurrying the injection of the first 100 c.cm. of blood. It is our practice now to take at least 20 minutes over the injection of 500 c.cm. of blood—the quantity we usually employ.

Results of Treatment by Immuno-transfusion.

It is always a difficult matter to convey in print what is thought to have been achieved by any method of treatment. Either the reader must be given all the evidence on which to form his own judgment—a wearisome and unsatisfactory procedure for both writer and reader—or, failing that, the writer must state broadly his estimate of the value of the method, and, for the reader's guidance in accepting or rejecting that estimate, must indicate the nature of the evidence on which it is based. We shall here employ the latter alternative, and, before referring to the results we have obtained, shall deal beiefly with the problem of evidential methods in its bearing upon these results. Sir Almroth Wright has devoted much thought to this problem and we may quote from him as follows:—

" The statistician has done his very best to persuade the world that there is only one way—that being the statistical method—by which the efficacy of a therapeutic method can be scientifically put to the test. The statistician asserts that there should in connexion with every therapeutic method be set out the results of a long series of cases treated, and that there should be compared with these results those of a similar series of untreated control cases. This method, except in connexion with very common and comparatively light infections (where no one is going to go to the trouble of applying it) is not only impracticable but almost inevitably fallacious. It is impracticable (*a*) because of the difficulty of assembling, unless we include all grades of infection and patients affected with all sorts of complications and accessory infections, sufficient cases for statistical operations; and (*b*) because of the all but impossibility of providing, by withholding treatment from a very large number of patients, the theoretically necessary number of control cases. And statistical treatment is almost inevitably fallacious because when we take an assortment of patients suffering from all different grades of infection, different complications and accessory infections (to say nothing of a percentage of patients wrongly diagnosed), and now proceed to divide these by any system into two groups, we shall almost inevitably have two groups which would not, if they had both been left to themselves, have furnished the same results. We may in view of this be devoutly thankful that there are non-statistical methods by which the efficacy of therapeutic measures can be tested.

" (1) Clinical evidence of the efficacy of a therapeutic measure is furnished by a cure effected in an intractable and progressive local infection, and by rescue from death in a plainly desperate case. But the evidence must not be limited to the citation of only one or two of such cases, for provision requires to be made for an occasional profound blunder in prognosis, and for the possibility of some undiscerned factor other than the treatment applied having been responsible for the transformation in the patient's condition. The difficulty of furnishing convincing testimony of dramatic improvements, and cures produced in hopeless cases will consist in the difficulty in finding words (for photographic records will only rarely be available)—words graphic enough to depict to the reader the desperate conditon of the patient when treatment was initiated and the resurrectional change that followed. Where verbal description is inadequate and photographic records are not available, the reader will have to be largely guided by his estimate of the trustworthiness and sobriety of judgment of the reporter.

" (2) To the clinical evidence furnished by cures of intractable and progressive local infections or rescues from death supervening in desperate conditions there can be superadded immunological data procured by measuring the antibacterial power of the patient's blood before and after treatment, and by measuring, in addition, when immuno-transfusion or serum-therapy is in question, the antibacterial power of the blood or serum injected. When such data testify to an improvement in antibacterial power following directly on treatment, and when they further show in connexion with immuno-transfusion or serum-therapy that the blood or serum incorporated was calculated to produce such a result, a previously existing strong presumption that the benefit witnessed resulted from the treatment will (for the man who consents to regard immunological data) be converted into a practical certainty.

" (3) Additional but not conclusive clinical evidence of the efficacy of a therapeutic measure is furnished by rapid and striking recoveries supervening upon treatment in serious but not desperate local and general infections, and by unambigious temporary improvements in cases which afterwards terminate fatally.

" (4) The evidential force of such clinical data is increased when these are supplemented by immunological data which show that treatment was regularly followed, and improvement preceded, by a marked increase in the antibacterial powers of the blood.

"The rôle of immunological data in the appraisement of value of therapeutic measures will have become clear. In the case where a cure has been obtained immunological data can, as we have seen, convert the presumption that the cure is due to treatment into a certainty. They can also render invaluable logical service by silencing the witticisms which make merry over the idea that it can, under some circumstances, with propriety be claimed in connexion with a patient who has succumbed that the therapeutic measures applied effectually did their office. Immunological data not only put a quietus upon such witticisms, but moreover they bring home the fact that no achievement of increased antibacterial powers is of any permanent avail when we are dealing either with a disseminated infection which is disproportionately large in comparison with the antibacterial forces we can bring against it, or with an unevacuated nidus of infection which goes on poisoning the blood."

With these considerations before us we may now briefly summarise the evidence afforded by our records that immuno-transfusion has been of value. The cases referred to have either been treated by us or have come closely under our cognisance.

(1) Of "plainly desperate cases" in which rapid improvement or definite cure has been obtained we have three records. One case was that described by Sir Almroth Wright in 1919, of severe streptococcal infection of the sacrum and ilium, to which reference has already been made. Another was the case of mastoid suppuration and lateral sinus thrombosis (streptococcal infection) referred to in the recent paper by Wright, Colebrook, and Storer (THE LANCET, 1923, i., under Example 3, p. 476). In this case immunological data (determinations of the strepto-phagocytic power) enabled us to correlate the patient's quite astonishing recovery with an increase of protective substances in the blood.

The third case, under the care of our colleague, Dr. John Freeman, was that of a lady, aged 74, who, following upon a mosquito bite, developed a very severe streptococcal cellulitis of the forearm, which soon extended to the upper arm and axilla. In spite of very free multiple incisions, the cellulitis was not checked and the erysipelas which accompanied it began to invade the trunk. The surgeon who was called in decided that amputation must be done in order to save life, but when he arrived to perform it the patient's condition was so grave that he judged her chance of surviving the operation was too slight to justify it. The case was therefore regarded as quite hopeless when Dr. Freeman was asked to see her. A culture he made from the arm yielded a pure and copious growth of streptococcus, and on testing her blood he found that the smallest addition of vaccine only served to reduce its already feeble phagocytic power. He therefore decided upon immuno-transfusion. The day following this treatment the patient's condition was already better and from that time she made good progress, the erysipelas subsiding, and no further operative treatment being required. After ten days a swab from the wounds on the arm yielded no culture of streptococci.

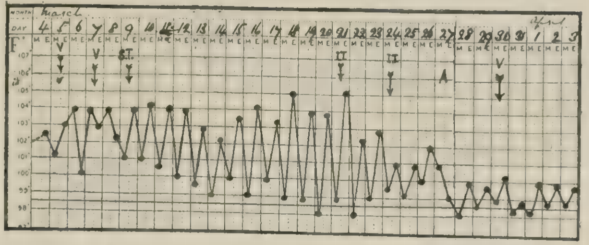
In addition to these three desperate cases which recovered we may refer very briefly here to a case of malignant endocarditis in which only temporary but nevertheless striking improvement was obtained. The patient was a man, aged 56, who had been ill with irregular fever for 12 weeks before treatment was begun. Streptococci were grown from the blood in considerable numbers on several occasions. After three immuno-transfusions at intervals of two to three weeks, and a few intravenous doses of vaccine, his temperature came to normal and kept down for several weeks, his general condition showing a corresponding improvement. The bloodstream was, however, never freed from Streptococci, and the patient finally died from circulatory collapse.

Turning now to the cases we have treated which may be grouped under the heading "serious, but not desperate infections" (Classes 3 and 4 above) we find in our records nine cases in which evidence of the value of immuno-transfusion was furnished by rapid and striking improvement, and, in some of them, also by immunological data. The salient features in respect of each of these cases were as follows:—

CASE 1.—A very grave case of staphylococcal osteomyelitis under the care of Mr. Maynard Smith. Both femora, one fibula, and the phalanges of one finger were affected and the boy had already developed pneumonia. Twenty-four hours before the transfusion his life was almost despaired of, but he rallied slightly, and following the injection of blood there was—to quote Mr. Maynard Smith's words—"a great and immediate improvement." From that time the boy held his own, but recovery was necessarily slow. There was a slight recrudescence of infection three months later. (The immuno-transfusion in this case was carried out by our colleague Dr. Porteous.)

CASE 2.—A child suffering from a generalised streptococcal infection with abscesses in the elbow-, ankle-, and wrist-joints. It will be seen from the accompanying temperature chart (Fig. 3) that two intravenous doses of vaccine and also a simple transfusion—i.e., of unimmunised blood—had failed to influence the infection and that a very satisfactory improvement followed the two injections of immunised blood, even in spite of the fact that an abscess remained unopened in the elbow-joint. When this focus was dealt with the boy's condition improved still further and he completely recovered. Some immunological data relating to this case will be found in the paper by Wright, Colebrook, and Storer, p. 476.

FIG. 3.



V, inoculation of vaccine. S.T., simple transfusion, 20 c.cm. I.T., immuno-transfusion, 25 c.cm. A, abscess of elbow-joint opened.

CASE 3.—A case of osteomyelitis of the frontal bone. Striking improvement followed the transfusion and the patient continued to do well for some time. Eventually an abscess developed and the patient did not long survive the operation undertaken to deal with this. The increased hæmo-bactericidal power of the patient's blood 24 hours after the transfusion and also that of the donor after immunisation are shown on p. 476 of the paper just referred to (*supra*).

CASE 4.—A case of puerperal infection. (Blood culture negative.) The temperature fell after the first transfusion, but rose again some days later. Complete recovery after a second immuno-transfusion.

CASE 5.—Female. Very severe streptococcal cellulitis of hand and arm, progressing in spite of multiple deep incisions. Condition considered critical. Remarkable improvement immediately during the 24 hours following immuno-transfusion and uninterrupted recovery.

CASE 6.—A boy suffering from septic infection of stump (streptococcus infection) following amputation through upper third of humerus for trauma. His condition caused anxiety, but began to improve at once after immuno-transfusion. Complete recovery.

CASE 7.—Male, with portal pyæmia following appendicitis and cholecystitis. Made good progress for several days after immuno-transfusion. He was extremely ill at the time of the transfusion, but held his ground and certainly improved somewhat during the following four days. Unfortunately, on the fifth day the sutures of his abdominal wound cut out and he did not long survive the operation required to deal with this.

CASE 8.—Male, with acute streptococcal epidemic infection (which resulted in three deaths). Patient had high fever but no localising signs. Blood culture negative. His condition was much improved on the day following immuno-transfusion and the temperature came to normal within 36 hours.

CASE 9.—Female. Severe puerperal infection. Pelvic cellulitis. Clinical improvement followed immuno-transfusion and was correlated with improved hæmo-bactericidal power (see below). Condition subsequently grew worse;

patient refused further treatment. Post-mortem revealed thrombus in inferior vena cava. The following experiment shows increased hæmo-bactericidal power to Staphylococcus of patient's blood 24 hours after immuno-transfusion. (Slide cell method.)

TABLE VI.

Patient's blood before immuno-transfusion.			Patient's blood 24 hr. after immuno-transfusion.		
No. of staph. implanted in the blood.	No. of colonies which grew in the blood.	Staph. killed by the blood.	No. of staph. implanted in the blood.	No. of colonies which grew in the blood.	Staph. killed by the blood.
		Per cent.			Per cent.
—	—	—	2000	55	97
(1000)	182	81	1000	33	96·7
(500)	88	82	496	11	97·8
(250)	43	82	248	9	96·4
(126)	27	78	124	5	96
—	—	—	52	4	92
—	—	—	26	3	88
—	—	—	13	0	100

In addition to those specified above we have records of seven cases which did not furnish any evidence that immuno-transfusion was of value. These were as follows :—

(*a*) A case of malignant endocarditis in a child associated with an unusually heavy infection. (Blood cultures when the patient first came under treatment yielded 76 colonies of streptococci per cubic centimetre of blood, and later on the number increased to 200.)

(*b*) A patient with colitis of many months' standing, who was absolutely in extremis when the transfusion was carried out, being too weak to speak, and incontinent.

(*c*) A case of puerperal pyæmia with very large abscesses which could not be adequately drained.

(*d*) A case of streptococcus septicæmia occurring in a very debilitated subject already suffering from generalised eczema and cellulitis.

(*e*) A case of puerperal septicæmia in the country whose general condition was extremely bad as the result of continued high fever for seven weeks and many rigors.

(*f*) A case of very advanced phthisis with laryngitis.

(*g*) A case of chronic mucous colitis of the neurasthenic type. There was no sufficient indication in this case for immuno-transfusion, which was carried out rather as a policy of despair—the patient having failed to respond clinically to vaccine-therapy and other forms of treatment.

In conclusion, we may remark that the results so far obtained represent only a beginning. It is quite possible, indeed probable, that with increasing knowledge we shall be able in the future to effect a still greater immunisation of the donor's blood and achieve with it correspondingly better therapeutic results.

Grateful acknowledgments are made to Sir Almroth Wright for his continual help and criticism; to Dr. H. B. Maitland, who worked with us for some months and to whom we are indebted for the records of several experiments; to Mr. Alexander Fleming for suggestions in connexion with technique; and to Dr. Freeman and Dr. Porteous for particulars of cases treated by them.

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8. Robertson, O. H.: Brit. Med. Jour., 1918, i., 477.
9. Fleming, A., and Porteous, A. B.: Blood Transfusion by the Citrate Method, THE LANCET, 1919, i., 973.
10. Fleming, A., and Colebrook, L.: THE LANCET, 1911, i., 1631.

Glasgow Northern Medical Club held their annual At Home on Dec. 11th in the Grand Hotel. The gathering was large and representative, and a very enjoyable evening was spent.

THE TREATMENT OF LIVER ABSCESS BY ASPIRATION.

BY A. R. NELIGAN, M.D. LOND.,
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I HAVE read recently in THE LANCET[1] the paper by Manson-Bahr, Low, Pratt, and Gregg on the treatment of liver abscess by aspiration. The writers are to be congratulated on their excellent results in the 15 cases described, and on the way in which they have set them out. My experience is not as great as theirs, but as I am a firm believer in the aspiration treatment I may be allowed to express my agreement with their methods. Indeed, almost the only criticism, if criticism it be, that I have to make on this excellent paper is one of surprise that its authors should have felt obliged to insist so strongly on its advantages as compared with open operation. Is not the aspiration treatment firmly established in tropical practice? And has it not been so, not "recently," but ever since the publication of Rogers's work—that is to say, for the last 10 years? Personally on reading his book, "Dysenteries," in 1913, I adopted the method and quickly became convinced of its value. As I write, however, I am reminded of two facts which suggested to me at the time that the aspiration treatment had not come into its own; one was Lieut.-Col. E. O. Thurston's analysis[2] of a series of cases of liver abscess treated in Bengal hospitals by open operation with 40 per cent. mortality; the other was that when last on leave I was asked to read a paper on the method. I desire, therefore, most emphatically to subscribe to all the statements made by Manson-Bahr and others. There is no doubt that, both for patient and surgeon, the aspiration treatment is preferable in every way for the very great majority of liver abscesses to open operation. I feel, indeed, that, with the exception to be described below, to open one is as much to be avoided as to open a tuberculous abscess. On the one side there is, or may be, a difficult operation under general anæsthesia, with a definite operative risk, a long period of convalescence, with daily expensive dressings and complicated endeavours to maintain asepsis and too often secondary infection, and, in the case of debilitated patients, death. On the other side there is a puncture (with or without local anæsthesia) and a collodion dressing, which may have to be repeated once, or in some cases twice or thrice. In the intervals the patient lies in bed undisturbed and free from pain, receiving his emetine injections, and causing neither anxiety nor trouble. The exception mentioned above is the abscess in the epigastric or hypochondriac regions, which presents no definite evidence of having formed adhesions with the parietes. Here it is safer to incise the abdominal wall, pack off the peritoneal cavity, and drain.

Technique.

As regards operative technique I have little to add to what is recommended in the paper quoted.

Site of Operation.—Under "swelling" is no doubt included pitting of the skin on pressure, a most important and helpful sign when present. In the absence of localising signs, and after unsuccessful punctures at other sites, one should always be made near the angle of the right scapula. This, I think, is mentioned in Manson's book. I remember assisting at an operation when several unsuccessful punctures were made in the lateral and anterior surfaces of the liver; the abdomen was then opened, and still no abscess was found. Finally a puncture was made near the angle of the right scapula and pus withdrawn at once.

I have rarely used general anæsthesia. A small skin incision or stab wound with a tenotomy knife makes the introduction of the large trocar of an aspirator easy. There is no pain once the body wall has been traversed. The statement that it is not necessary to inject a solution of quinine or of emetine into the abscess cavity after the pus has been aspirated, as recommended by Rogers, is interesting. I have notes of a small acute abscess which recovered without their use after withdrawing only a drachm of pus with an exploring syringe. In future I shall treat some of these cases without injections into the cavity, but I do not think I shall omit them in the case of patients who are very weak or who have not received some emetine before aspiration. I have seen two cases in which there was a secondary infection, one with a streptococcus, the other with a bacillus and a diplococcus, and in which therefore I did not expect a very favourable result. Did the injection of a solution of quinine into the abscess cavity help towards their recovery? "The effusion of serum into the abscess cavity probably takes place normally, and should be regarded as the natural method of repair." My experience corresponds with the first half of this sentence, but the effusion has on several occasions been accompanied by a rise in temperature, and this fell after a second aspiration. The serum was stained with altered blood and contained no formed elements. I, too, have never seen symptoms which could be set down to internal hæmorrhage, after exploring the liver with either needles or trocars.

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[1] THE LANCET, 1923, i., 941.
[2] Indian Med. Gaz., 1914, i., 88.

Diagnosis.

The frequent absence of a leucocytosis in abscess of the liver is well emphasised in the paper. It is a most important factor for those who are beginning tropical practice to learn. Lesions of the pleura at the right base, be they a recent small serous effusion or a chronic empyema, may cause difficulty in a country where abscess of the liver occurs. Tenderness on pressure between the ribs occurs in both conditions (a fact which, by the way, I have not seen mentioned in text-books), and it is a classical sign in hepatitis. On the other hand, an abscess in the upper posterior part of the right lobe of the liver may cause displacement of the heart's apex beat, to say nothing of dullness and weak breath sounds. Indeed, in the case of empyema, there may be doubt even after finding pus with the needle, for liver pus is not always of the anchovy colour. In yet other cases there may be a lesion of the pleura together with an abscess of the liver. The patient is frequently a villager from some distant part, and the history often of no assistance. Returning to that important physical sign, tenderness on pressure between the ribs (present in the majority of cases of hepatitis, and often the sole indication as to where to explore), it may in some cases seem to fail us. It is not easy for a patient of low intelligence to distinguish between a superficial pain caused by squeezing the integuments between finger and rib and the deep tenderness due to pressure on an inflamed organ. Indeed, people who are very ill and thin may complain of pain at whatever point of the body pressure is made. In these circumstances I find it useful to explain as clearly as possible that I am searching for deep tenderness, and then to compare the two sides of the chest, examining methodically the intercostal spaces with the same degree of finger pressure. In this way the patient learns what is the sensation due simply to pressure on skin and rib, and whether, on one side or the other, there is an added discomfort, which he may now be able to say is definitely deeper than the surface.

Altogether the region of the diaphragm presents some of the most interesting problems in clinical diagnosis, especially when a patient comes during one of the apyrexial intervals which may occur during the course of a hepatic abscess. The X ray screen must be a great help in the diagnosis of the various conditions found here, but I have not had the advantage of being able to use it.

In concluding I would like to describe shortly three cases which bear further striking testimony to the value of aspiration and which show that it is sometimes necessary to remove collections of serum.

CASE 1.—Cultivator. Seen August 23rd, 1918. Abscess ight lobe of liver; no leucocytosis; 75 ounces of pus spirated same day (emetine gr. 2). On the 31st temperature ose to 100° F.; 16 ounces of serum aspirated (quinine gr. 10). emperature fell to normal, and patient insisted on leaving ospital on Sept. 4th as he "felt so well."

CASE 2.—Labourer. Seen May 9th, 1919. Abscess left lobe of liver and of spleen; leucocytes 8000; 62 ounces of pus aspirated on the 13th; trocar entered in middle line of abdomen 2 inches below xiphisternum (emetine gr. 2). Pus again aspirated from the left lobe on the 25th 14 ounces (quinine gr. 10), on June 25th 6 ounces (emetine gr. 2), and July 4th 6 ounces (quinine gr. 5). The patient has been seen recently and has been well in the interval.

CASE 3.—Hod-carrier. Seen May 27th, 1919. Abscess right lobe of liver; leucocytes 5600; 37 ounces of pus aspirated same day (emetine gr. 2). On June 16th, 27 ounces aspirated (emetine gr. 2). On the 20th (emetine gr. 1) and 26th, and on July 12th (quinine gr. 10), temperature rose and blood-stained serum was aspirated on each occasion, with consequent drop in temperature to normal. There were probably two large abscesses in this case. This patient has been seen recently for myocardial trouble; he is otherwise well and has been hod-carrying.

The amounts of emetine and quinine mentioned were injected through the trocar before withdrawing it from the abscess cavity. Case 2 is remarkable for the fact that there were abscesses of the left lobe of the liver and of the spleen, which were in communication and which were emptied at one aspiration. The splenic abscess did not refill, but that in the liver required subsequent treatment.

A NOTE ON A RARE FORM OF CONGENITAL CARDIAC ABNORMALITY.

BY EDITH F. WILLOCK, M.B. DUB., D.P.H.,
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THE interest of the following case lies in the peculiar cardiac condition present, which was associated with a duration of life of over three months.

The Case Described.

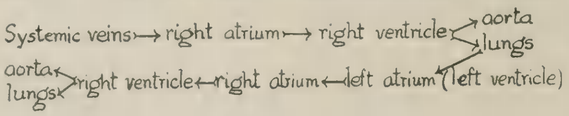
A male child, aged 3 months, was admitted into hospital as a "cardiac case." The history was that the infant's colour had always been bad, and that he had suffered from constant dyspnœa, which was greatly increased when fed; there had been no dyspeptic symptoms, but the child had not thrived normally. The family history was negative.

Condition on Admission.—The patient was a small wasted infant, who looked very ill; the colour was ashy grey, the eyes sunken, fontanelle depressed, respirations rapid and laboured, pulse very rapid and feeble, and temperature subnormal. Examination showed that the area of cardiac dullness was increased to the right of the sternum, the apex beat was displaced downwards and outwards, and a diffuse epigastric pulsation was present; on auscultation no cardiac murmurs were audible, and pulmonary examination revealed nothing abnormal.

Course of Case.—The infant was given two-hourly feeds of breast milk, which he took with great difficulty; when fed the colour at once became worse and slightly cyanotic, and the respirations grew very rapid and laboured; this distress gradually abated after the completion of the feed, but oxygen and brandy had to be administered during each meal, and occasionally camphor and strychnine given in addition. During the next few days the infant's condition improved slightly, and milk was taken with less difficulty. On the fifth day, however, the temperature rose to 101° F. and a cough developed; on examination of the chest a few râles were audible in the left axilla, and the breath sounds generally were harsh. On the following day the infant was much worse, the temperature rose to 104° that evening, and death occurred six hours later.

Post-mortem Examination.—There was an abnormal quantity of pericardial fluid present, and the heart itself appeared flattened from above downwards. The great vessels looked normal, except that the aorta was small compared with the pulmonary artery; the condition of the ductus arteriosus was, most unfortunately, not investigated. The right atrium was dilated and hypertrophied, and communicated with the left atrium through a patent foramen ovale; the right atrio-ventricular orifice was large with somewhat nodular valves, but was apparently competent. The right ventricle was greatly dilated and hypertrophied, while both aorta and pulmonary artery sprang from the conus arteriosus; no inter-ventricular foramen was present. The left atrium was small with a large auricular appendage; the foramen ovale was patent, and the left atrio-ventricular orifice was small and ring-like, with obviously functionless valves. The left ventricle was very small (about one-eighth the size of the right), and its only communication was with the left atrium through the atrio-ventricular orifice. The aorta originated from the right ventricle, commencing posteriorly and to the right of the pulmonary artery; it was somewhat small in size, but with normal valves. The pulmonary artery was large and normal as regards its valves. The lungs were congested, and showed evidence of slight bronchitis; the only other abnormality present was a complete mesenteric attachment to the whole of the large intestine. The blood from the systemic veins reached the right ventricle from the right atrium, its passage to the left atrium through the foramen ovale being prevented by the valvular formation of that opening. The right ventricle then drove the blood through the aorta and pulmonary artery to the systemic and pulmonary circulations. From the lungs the blood returned through the normal pulmonary veins to the left atrium, and thence by the foramen ovale to the right atrium, the left ventricle being merely an appendage of the left atrium and the left atrio-ventricular orifice functionless.

The schema of the circulation was as follows:—


Systemic veins → right atrium → right ventricle
aorta
lungs
aorta
lungs
right ventricle ← right atrium ← left atrium (left ventricle)

The heart was carefully examined for the presence of inter-ventricular foramina, but the inter-ventricular septum was complete and well developed. Evidence of the normal origin of the aorta was also sought for, and two or three shallow recesses were found in the left ventricle, in the region from which the aorta should have arisen; there was, in addition, an ill-defined recess in the right ventricle leading from the base of the aorta, backwards and to the left, towards the small left ventricle; these were, however, only cul-de-sacs.

It is probable that the ductus arteriosus in this case was patent, since, the pressure in the aorta and pulmonary artery being equal, the lungs would have suffered greatly from the high pressure, and the small aorta would have proved insufficient for the needs of the systemic circulation, had not such a safety-valve been present.

Commentary.

The most interesting points in this case were, therefore, as follows. The inter-ventricular septum was complete, showing no defects at all; the left ventricle communicated only with the left atrium, of which chamber it was merely a recess; and the aorta and pulmonary artery both sprang from the conus arteriosus of the right ventricle. To attempt to explain these anomalies it would appear necessary to assume an almost complete failure of development of the proximal bulbar septum, with secondary closure of the resultant defect in the inter-ventricular septum, the two ventricles being thus completely separated. The patent condition of the foramen ovale is a less rare occurrence, but it is interesting to note that in this case the blood passed through the aperture in the reverse direction to that of the normal fœtal stream.

There are a few cases on record which somewhat resemble the one described above. Keith[1] described a similar condition, but the infant only lived for two days; the cardiac malformations consisted of stenosis of the aorta, obliteration of the left atrio-ventricular orifice and left ventricle (traces only of this chamber remaining), a small left atrium, a patent foramen ovale, dilated right ventricle, patent ductus arteriosus, and partial transposition of the great vessels. Dudzus[2] collected records of a series of congenital cardiac abnormalities, three of these in particular (those of Jost, Theremin, and Spolverini) show a marked similarity to the case recorded here. The condition I have described is, according to Abbott in Osler and McCrae's "System of Medicine," one of the rare cases of true cor triloculare biatriatum, showing two fully developed atria, a patent foramen ovale, a single functioning ventricle from which both great vessels spring, and a rudimentary left ventricle which is merely a recess of the left atrium.

I am greatly indebted to Dr. Nesta Perry for her permission to publish this case.

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[1] Keith, Sir A.: Jour. Anat. and Physiol., 1912, p. 211.

[2] Dudzus, M.: Virchow's Archiv f. Path. Anat. Berl., 1922, ccxxxvii., 32.

Medical Societies.

LIVERPOOL MEDICAL INSTITUTION.

A pathological meeting was held on Dec. 6th. A number of specimens were shown and a short discussion followed.

Prof. E. Glynn, in association with Prof. J. Hill Abram, communicated a note on a case of

Acute Miliary Tuberculosis Complicated by an Anaerobic Infection.

The patient, a male aged 19, had suffered from "influenza" twice during the past year and pleurisy once. Weakness had been increasing for six weeks before admission and he died three days later, the temperature ranging from 103°–105° F. The lymph glands and spleen were enlarged, but there were no other signs except a systolic cardiac murmur at the apex. Blood cultures yielded *Staphylococcus albus* consistently. Red blood cells were 3,000,000 with a few megalo- and normo-blasts. The white cells were 12,000 per c.mm. with a preponderance of lymphocytes. At the post-mortem, 11 hours after death, the ileo-cæcal glands formed a mass the size of a hen's egg, were hæmorrhagic, and swarming with tubercle bacilli. They also grew *Staphylococcus albus*. All other lymph-glands were somewhat enlarged. There were gas bubbles in the portal system and large numbers of Gram-positive bacilli in the liver, which proved to be of the *B. aerogenes capsulatus* type. The liver showed typical caseating tuberculous nodules as well, and it contained hæmosiderin. The lungs showed a patch of grey hepatisation in which great masses of organisms resembling pneumococci were present. A similar case of miliary tuberculosis affecting mainly the mesenteric glands, but without *B. aerogenes capsulatus* infection, was described. This patient had not the anæmia of the pernicious type found in the former case. Of the four organisms found at death, the anaerobe was the most likely to have caused this anæmia. Other cases suggesting blood infection with anaerobes during life were quoted to confirm the speaker's opinion that in this case the anaerobe was present in the blood during life.

Prof. Hill Abram and Mr. J. T. Morrison believed the infection was probably terminal, the latter mentioning that the typical blood picture seen in aerogenes infection was not present.—Prof. J. M. Beattie thought that the multiplicity of organisms present might explain the rapid multiplication of tubercle bacilli.

Mr. Morrison read a short paper on the

Differentiation of Human and Bovine Tubercle Bacilli.

Alluding to the need for a reasoned consensus of opinion on this subject, he proceeded to sketch the differences recognised between the two types, and showed illustrative specimens of cultures and animal inoculations. Attention was drawn to the variations in results even in animal inoculations. Dean and Todd, and others too, had shown that Koch's original statement that animals could not be infected with human bacilli was not accurate. In the rabbit the results of inoculation were usually conclusive, but variations were also suggested that the number of organisms injected might materially influence the decision. With regard to the question of the stability of types the findings of the Royal Commission on Tuberculosis were quoted, and the importance of the exceptional cases pointed out, where by passage or culture definite changes in type had been produced. These observations supported the view of Besson and others that the two organisms were essentially one, to which view the author tended to adhere. At the same time in animal inoculation we had a means of determining with considerable accuracy the immediate source of the infecting bacillus, and on such conclusions it was justifiable to base public policy in the campaign against tuberculosis.

LONDON ASSOCIATION OF THE FEDERATION OF MEDICAL WOMEN.

A meeting was held on Dec. 11th at the Elizabeth Garrett Anderson Hospital, with Miss M. Chadburn the President, in the chair.

Dr. **Agnes Savill** read a paper on the

Sun Treatment of Tuberculosis at Leysin.

Dr. Savill said that a happy chance had led her, while enjoying a holiday in Switzerland, to visit the now world-famous clinic of Dr. Rollier, and spoke of the pleasant and inspiring experience that awaits any medical practitioner who attends the summer course of lectures and demonstrations there. Dr. Savill dealt with the subject mainly from two aspects. In the first place she gave a vivid description of the clinics (Les Frênes and the Châlets), making her hearers see in imagination the spacious balconies, the clear and artistic rooms, filled with the morning sun, the happy patients, the brown and laughing children playing naked in the snow, and emphasising above all the pervading spirit of human comradeship and cheerful helpfulness which pervades the whole organisation. In the second place she dealt with the more purely scientific aspect of the treatment. The physical properties of light were briefly discussed, with its bactericidal and chemical powers. It was pointed out that the ultra-violet rays, though apparently of low penetrating power, yet seemed of great therapeutic importance, and it was suggested that their wave-length might be modified by passage through the pigment-containing basal layers of the epidermis. That the good results are due to the sunlight itself rather than to the pure air and good conditions was indicated by the fact that the results seemed to be distinctly poorer in cloudy weather, and also that very severe reactionary effects could be produced by improper or careless dosage. A point to be emphasised was that light, like any other therapeutic agent, requires careful regulation, the dose being studied for the individual and based on the measurement of definite reactions (e.g., rise of temperature, dermatitis, exhaustion, &c.). It was worthy of note how health was maintained by the action of the light alone, the patient being entirely at rest and no massage being used. Dr. Savill also dealt with the various artificial substitutes for sunlight, which could be used in this country. The principal ones discussed were the carbon arc lamp, which was giving good results at the London Hospital at the present time, the mercury-vapour lamp, and the tungsten arc, this last giving the greatest proportion of ultra-violet rays and requiring therefore short exposures. In conclusion, Dr. Savill emphasised the need for accurate dosage of sunlight, for a pure atmosphere, and for a lengthy treatment, if a successful result was to be obtained.

Discussion.

Dr. **Kate Platt** read some notes sent by Dr. **Florence Stoney** on several cases she had treated at Bournemouth with good results.—Dr. **Charlotte Brown** said that her experiences at Leysin confirmed Dr. Savill's, and dealt with the sun treatment in England, when supplemented by arc-lamp treatment in the winter.—Dr. **Helen Mackay** spoke of the experimental side of the question of the action of light and described her experiences in the investigation and treatment of rickets, both in Vienna and London.—Miss **Ida C. Mann** described a case of Dr. Rollier's which she had followed, and discussed the results of the treatment at present being obtained at the Royal Sea Bathing Hospital, Margate, which she had had the opportunity of visiting.—Dr. **Lucy Nash** inquired as to the cost of substitutes for sunlight.—Mrs. **Handley H. Read** asked whether treatment by light had any action on pyorrhœa alveolaris.

The questions of the relation of impure air to tuberculous cervical adenitis, and the advisability of improving the health of the school child in this respect, and also the practical side of treatment and prophylaxis in England, and the type of patient most likely to be benefited by treatment, were discussed by various speakers, among whom were Dr. **Octavia Lewin**, Dr. **M. Dobbie**, Dr. **L. M. Potter**, and Dr. **C. A. S. Fitter**.

EDINBURGH OBSTETRICAL SOCIETY.

A meeting of this Society was held in the New Gallery, Edinburgh, on Dec. 12th, Prof. B. P. Watson, the President, being in the chair.

Exhibition of Specimens.

The following specimens were exhibited :—

Dr. **William Fordyce**: Large fibroid tumour of cervix, weighing 16½ lb. at time of removal.—Dr. **J. Lamond Lackie**: (1) Uterus with multiple fibroids, removed after expulsion of a four months' fœtus; placenta in situ. (2) Uterus with multiple fibroids; Cæsarean section done in full-time pregnancy. Hysterectomy performed on account of pain.—Dr. **W. F. T. Haultain**: Fibroid tumour simulating a horn of a bicornuate uterus.—The **President**: (1) Uterine fibroid with sarcomatous change; (2) uterine fibroid with carcinomatous invasion in a patient with carcinoma of vulva and of cæcum; (3) fibroid pushing cervix up on to the pubis removed at fifth month of pregnancy; (4) dermoid tumour of ovary with twisted pedicle simulating pelvic abscess and removed per vaginam.

Dr. **F. J. Browne** read a paper on the

Induction of Labour by Quinine and Pituitrin.

He began his address by referring to the researches of Oliver and Schafer, Dale and Blair Bell concerning the discovery of the drug and its action in causing uterine contraction, and went on to speak of the investigations of Fries, Haugh and Meyer, Stein and Dover, Cron and of B. P. Watson in inducing labour by its agency. In 1922 Watson had published the results obtained in a series of 195 cases, in 90 per cent. of which labour was induced with no maternal mortality and a fœtal death-rate of 6 per cent., nor could any of these deaths be fairly attributed to the use of pituitrin. The present communication was based on a series of 44 cases. Most of these had suffered from purulent vaginal discharges, and were therefore unsuitable for mechanical methods of induction. The technique employed was that advised by Watson. The indications included disproportion at term, primiparity, post-maturity, toxæmia, and hydramnios; 27 of the patients were primigravidæ, the others multiparæ; 23 of the patients were at term, three were post-mature according to the estimated dates, and 18 were premature. Out of the 44 cases, 40 were successful—i.e., a little over 90 per cent. All the failures occurred in cases where premature labour had been attempted. With regard to the time taken to start and complete labour, counting from the first dose of quinine, the average time taken till the onset of labour averaged 29 hours, and the average duration of labour was 16 hours. In the premature cases the average time taken till the onset of labour was 39 hours, and the average duration of labour nine hours. In spite of the numerous objections urged against the use of pituitrin for this purpose, the only misfortunes the speaker had experienced were two cases of tetanic contraction of the uterus. In both cases the spasm was effectually controlled by chloroform, but in one case the child was stillborn. While 26 of the patients had suffered from purulent vaginal discharges, only three patients showed a rise of temperature in the puerperium, and in no case was this prolonged into a second day. In four cases the child had been stillborn; in only one case, however, the case of tetanic contraction referred to, could this be attributed to the use of pituitrin.

Dr. **Fordyce** read the notes of a case of rupture of the uterus, following the administration of pituitrin for the induction of labour. A discussion followed.

Reviews and Notices of Books.

HISTORY OF THE GREAT WAR.

Medical Services: General History. Vol. II. By Major-General Sir W. G. MACPHERSON, K.C.M.G., C.B., LL.D. London: H.M. Stationery Office. 1923. Pp. 510. 21*s.*

THE second of four volumes on the General History of the Medical Services, forming part of the official medical history of the war, is exclusively the work of Sir William Macpherson, as was the first volume on the general history published two years ago.[1] There remain two volumes of general history, which have been prepared, though some time will elapse before they can be published. These will close the series apart from the volume on Statistics, which is being undertaken by the Ministry of Pensions. The present volume deals with the medical services of the British Expeditionary Force in France and Belgium down to the Battle of Loos, and has been compiled entirely from war diaries, including diaries of the administrative medical services, and from official despatches. At the outset of the campaign, without carefully prepared schemes and organisation, so as to ensure the rapid collection and evacuation of the wounded, confusion and delay were inevitable, and here the importance of administration in the employment of the medical services in war is emphasised. During the earlier operations, while the work of organisation was going on, the field medical units of divisions were most in evidence; for until the Expeditionary Force had been formed into armies, each with casualty clearing stations and motor ambulance convoys allotted to it, it was difficult to carry out schemes for methodically receiving and evacuating sick and wounded. But in the succeeding years the casualty clearing stations became the chief centres of the medical work with the field armies, and " when put to the practical test of war " fully justified their description in the field service regulations as " the pivot on which the whole system of collecting and evacuating sick and wounded turned." Hence the chapters on the later battles emphasise more the strategical employment and work of those units than the tactical employment of the field ambulances, which were acting under divisional control along normal lines.

The volume contains a number of illustrations and many carefully prepared charts and plans. Six large maps, unbound, are included in a pocket of the cover. It is understood that separate histories of the Medical Services of the Dominion Contingents are in course of preparation.

TEXT-BOOK OF CLINICAL PERIODONTIA.

By PAUL R. STILLMAN, D.D.S., and J. O. MCCALL, A.B., D.D.S. New York: Macmillan Co. 1922. With 79 Illustrations. Pp. 240. 16*s.*

FOR the benefit of the English reader unversed in the newer developments of dental terminology in America it may be as well to state that by " periodontia " is meant the branch of dentistry concerned with the treatment of " periodontoclasia." The latter term can be translated into the familiar words pyorrhœa alveolaris. While we may agree with the authors that this phrase is pathologically inaccurate, it is doubtful whether it can be replaced at this stage. Many strange words, indeed, appear in this book, such as " apoxesis " (the operation of scaling the teeth) and " ula " (the gum), and the authors find it necessary to devote a whole chapter to nomenclature. We deplore this invention of new and unnecessary words when others exist with the sanction of long usage. It darkens counsel and may, as Voltaire reminded us, conceal a poverty of thought.

In a book concerned with so elusive a disease as pyorrhœa, the chapters on ætiology are those likely to be first examined. The authors put forward some new hypotheses of considerable interest. They divide the ætiological factors into two—primary or inaugurating, and secondary or non-inaugurating. These two co-exist in a kind of symbiosis; neither alone can cause pyorrhœa. The primary causes are, according to the authors, almost entirely mechanical; the secondary causes are of various kinds, of which bacterial infection is only one receiving comparatively brief mention. Among primary causes the authors lay great stress on traumatic occlusion as an important factor in the production of pyorrhœa. Since this view was first put forward by P. R. Stillman, this book represents an authoritative account of his theory. The conception depends on the hypothesis that there is a normal occlusion of standard type; Stillman, following E. H. Angle, assumes a rigid and fixed type which may be considered the same for all cases. The orthodontist concerned with the correction of irregularities of the teeth is familiar with this hypothesis, but its application to the ætiology of pyorrhœa is a newer development. Such a view does not appear to allow any margin for biological variation. Traumatic occlusion as an ætiological factor in pyorrhœa seems therefore somewhat speculative. Gross deviations from normal occlusion often exist in pyorrhœic mouths, though not invariably, and may undoubtedly predispose to pyorrhœa by favouring the impaction of food. But Stillman goes much beyond this and considers that very slight deviations from the hypothetical normal can cause pyorrhœa. According to his argument, the impact of mastication on teeth not correctly aligned injures the periodontal membrane to such an extent that bacterial infection supervenes. Stillman advises that pyorrhœa should be treated by correcting the mal-occlusion, and this by grinding the surfaces of the teeth, so as to produce the same series of inclined planes which exist in normal occlusion. No very convincing proofs are offered in support of the theory, but it is claimed that this form of treatment is highly successful. Since the usual routine of scaling and medication is also carried out, it might reasonably be argued that improvement results rather from the last-named treatment.

There may be a wholesome kernel of truth in this theory, but the husk of conjecture seems disproportionally large, and we doubt if the obscurity surrounding the causation of pyorrhœa is much lightened by the theory propounded in this book.

SURGERY.

Elements of Surgical Diagnosis. Sixth edition. By E. P. GOULD, M.D., F.R.C.S., Assistant Surgeon, Middlesex Hospital; Surgeon to the Bolingbroke Hospital. London: Cassell and Co. 1923. Pp. 739. 12*s.* 6*d.*

THIS is a new and revised edition of a well-known manual. It maintains the standard of former editions. It is eminently readable, has a good index, and is of a handy size. It is likely to remain popular with the student beginning the study of clinical surgery.

A Text-book of Minor Surgery. Fifth edition. By E. M. FOOTE, A.M., M.D., Visiting Surgeon, St. Joseph's Hospital; Consulting Surgeon, Randall's Island Hospitals and Schools; Clinical Professor of Surgery, New York Polyclinic Medical School and Hospital. London: D. Appleton and Co. 1923. Pp. 845. 35*s.*

IN the preface to this book Mr. Foote points out that in the past few years many new ideas in the diagnosis and treatment of disease have been announced and tested. Some of them, like the Wassermann test of the blood and the intravenous injection of preparations of arsenic in the treatment of syphilis, have affected all branches of medicine. Others are purely surgical in character, and it is these which have been incorporated in the fifth edition of this popular text-book. The excellence of illustrations alone would account for this popularity, and the general get-up of the book is attractive. The section on blood transfusion needs to be rewritten entirely. Direct blood transfusion from one patient to another cannot be ranked as a minor surgical procedure, and, moreover, it is not justifiable, in view of the other simpler and more reliable methods. In most other respects the book is adequate for its purpose, which is to apply to the less serious everyday problems of surgical practice the new knowledge which the discoveries of the last 20 years have revealed.

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[1] See THE LANCET, 1921, ii., 1286; and also Oct. 20th, 1923, p. 893.

Orthopædic Surgery. Seventh edition, thoroughly revised. By ROYAL WHITMAN, M.D., M.R.C.S., F.A.C.S., Surgeon to the Hospital for the Ruptured and Crippled, New York, &c. With 877 engravings. London: Henry Kimpton. 1924. Pp. xii. + 993. 42*s*.

DR. Royal Whitman seems rightly determined to keep his treatise on Orthopædic Surgery up to date, for he has this year brought out a seventh edition. We noticed the sixth edition in THE LANCET (1919, ii., 19), and it is therefore only necessary now to note the changes which have been made in the new edition of this well-known work. In the first place, a few of the old illustrations have been omitted, but a number of new ones have been added, so that there are now 877 instead of 767. The additional figures are distributed throughout the book, but the principal changes are to be found in the chapters on the treatment of the deformities following upon anterior poliomyelitis in which operations of tendon transplantation are fully illustrated. The operation of arthrodesis of the foot and ankle, which is so well known under the author's name, is illustrated by some new photographs. The section on the treatment of fracture of the neck of the femur in adults is expanded and transferred, without reason assigned, to the chapter on Collateral Orthopædic Surgery, which takes the place occupied in the sixth edition by that on Military Orthopædic Surgery. Under this new chapter heading are included the treatment of fractures, operations of reconstruction or arthrodesis of the hip-joint, and some of the subjects which were formerly included in Military Orthopædics.

It is unnecessary to say much about a book which has become so well known, but we may hazard the opinion that this standard treatise has been brought so thoroughly up to date as to make it one of the most complete works on orthopædic surgery in the English language.

MCNALLY'S SANITARY HANDBOOK FOR INDIA.

Sixth edition. Rewritten by Major A. J. H. RUSSELL, M.A., M.D., Director of Public Health, Madras. Madras: Government Press. Pp. 472. R.4.8.

THE appearance of this well-known handbook, now revised and rewritten by Major Russell, affords useful evidence of advance in Indian sanitation, and its contents incidentally throw much light on British sanitary problems. The book is well written, readable, and we heartily commend its perusal to public health students in this and other countries desiring to view the chief problems of public sanitation from an Eastern standpoint.

The subjects are dealt with on similar lines to those followed in other text-books on public health. The information given under certain headings is elementary, as befits a book for consumption by Eastern students; but the main principles are clearly stated in the light of recent research, and we have failed to discover any error of fact or inference, except possibly the remarks on page 357 on the prevention of syphilis; here it is definitely stated that the inspection and treatment under the Contagious Diseases Acts in this country were definitely beneficial, and an opinion is expressed that regulation of prostitutes by law has been of obvious benefit in many European states. Both of these statements are highly debatable. The chapter on foods is very full, and includes a section giving a useful summary of our knowledge on accessory food substances. The importance of milk as a food is stressed, as in India it forms the sole animal food of Brahmins and some other castes. The Indian cow gives only about a quarter of the milk yielded by an English cow, the difference probably being due in the main to the deficiency and poor quality of the food supplied to the Indian cow. Raw milk is very rarely used in India; but that the apparently small amount of non-pulmonary tuberculosis in India is not thus explained is indicated by the statement on page 355 that in Madras Presidency it is very rare to find a tuberculous animal in a slaughter-house.

Parasitic diseases are very prevalent, especially ankylostomiasis. Special investigations in the last three or four years have shown that the infection-rate of the population varies from 99 per cent. in wet districts to between 30 and 40 per cent. in dry districts. It is almost universal in the coolie classes working on tea and coffee estates. We note a useful practical point in protecting coolies who will not wear boots against hookworm disease—viz., to make each man, before going to work, step into a vessel containing tar, so that the legs are coated with tar up to the knees. Apparently no instances of dermatitis have been recorded. The difficulty of protecting natives against this disease, even in cities, may be appreciated from the statement that in Madras city 20 tons of fæcal matter are estimated to be deposited daily in unauthorised places all over the town, and there allowed to remain. Ingenious use is made of ancient Indian teaching on various topics, as that Vishnu laid down a heavy fine for the pollution of drinking water. So in advising against immature marriages orthodox Indians are commended to observe the teaching of the seer who stated that a young man should not marry until he becomes a grihastha—that is, when he is about 24 years old.

The student or health officer who reads through this sanitary handbook will be impressed by its mastery of the essential principles of hygiene and public health, and by the excellent manner of presentation and discussion of each subject.

INDUSTRIAL OPHTHALMOLOGY.

L'hygiène de l'œil et le travail industriel. Problems of Industrial Illumination. Geneva: International Labour Office of the League of Nations. 1923. Pp. 160. Fr.3 (Swiss).

THE subjects dealt with in this useful brochure are as follows: The comparison of various sources of natural and artificial light, the minimum amount of light required for various employments, and the methods whereby it can be measured; ocular fatigue and its prophylaxis in different employments, its bearing on progressive myopia and on miners' nystagmus; industrial accidents due to deficient illumination; and lastly, a comparison of the regulations in force in different countries whose object is the minimising of ocular fatigue in industrial employment. This volume affords a useful summary of the present stage of knowledge and practice in all these subjects. Its value is enhanced by a bibliography containing a list of papers on these subjects by English, American, French, German, and Swiss writers.

CHEMISTRY.

Systematic Organic Chemistry. Modern Methods of Preparation and Estimation. By WILLIAM M. CUMMING, B.Sc., F.I.C., I. VANCE HOPPER, B.Sc., A.R.C.Sc.I., F.I.C.; and T. SHERLOCK WHEELER, B.Sc., A.R.C.Sc.I., A.I.C. London: Constable and Co., Ltd. 1923. Pp. 535. 25*s*.

A CRITICISM which may justly be levelled at the majority of books dealing with practical organic chemistry is that they have been written with a complete disregard for any considerations of practical importance in technical production. To meet this criticism the present authors, all of whom have had both academic and industrial experience, have emphasised the necessity for considering the cost of the process and materials employed in the production of any given compound and have further introduced several manufacturing methods on a laboratory scale. They have, moreover, very wisely included a few operations involving the use of "oleum" in view of the industrial importance of this material.

The book opens with a useful chapter containing cautions with regard to the dangers of fire, poison, and accidents, and simple methods of dealing with the latter and other general advice to students; the second chapter deals at some length with a variety of apparatus which should be contained in a well-equipped laboratory. The second part of the book is divided into 30 chapters dealing with the actual preparation of specific compounds. The arrangement here adopted is novel and has much to recommend it; the general principle has been to divide the preparations and the headings of linking of carbon to carbon or hydrogen, sulphur, nitrogen, &c., each group being further systematically subdivided. Part III., composed of ten chapters, deals with quantitative measurements and estimations of groups, &c., while Part IV. is devoted to the preparation of a number of inorganic compounds required for the production of some of the organic compounds described in Part II. The authors have kept before them the intention of showing the student the close connexion between the lecture-room and the laboratory by accompanying each new reaction mentioned by a practical experiment to illustrate it, and have thus compiled a valuable book containing a large variety of organic preparations. The practical instructions are throughout clear and intelligible and references to original literature are repeatedly given. The book should be welcomed by teachers and students as a valuable addition to the practical text-books of organic chemistry.

Kurzes Lehrbuch der Chemie in Natur und Wissenschaft. By Prof. Carl Oppenheimer, Ph.D., M.D. Leipzig: Georg Thieme. 1923. Pp. ix. + 258 + 862. 29*s.*

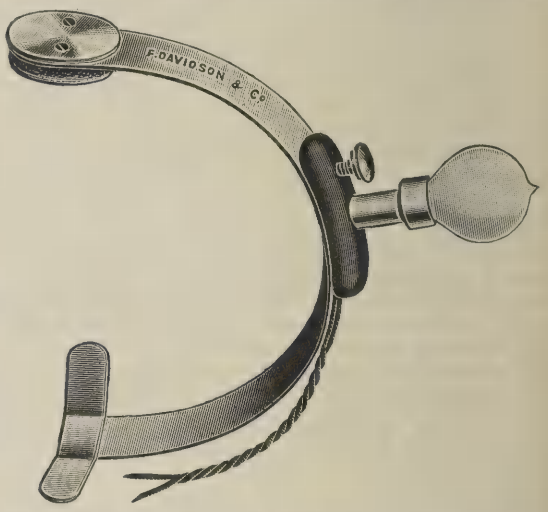
There is nowadays hardly a branch of pure or applied science which does not, sooner or later, require the assistance of chemistry for the further elucidation of its problems, but unfortunately not all workers have chemical equipment requisite for further progress. It thus happens that there exists a large body of what may be described as chemical amateurs who, through force of circumstances, have acquired an interest in chemistry when it is too late to take up a complete study. For these a book such as Prof. Oppenheimer's may supply a want, since it attempts to compress into one volume the whole subject of chemistry in potted form. The introduction to general chemistry has been entrusted to Prof. Johann Matula, who deals ably with a wide range of subjects which include, among others, radio-activity, atomic structure, X ray spectra, colloids, valency, coördination numbers, thermodynamics, electro-chemistry, &c., the whole being treated in an up-to-date and readily intelligible manner. The second part, devoted to inorganic chemistry and covering 318 pages, is by Prof. Oppenheimer himself, and by skilful interspersion of a number of facts of practical or of physiological interest he has invested the subject with an interest not commonly encountered in a text-book of inorganic chemistry. The perusal of this section might well be recommended to those who would like to see inorganic chemistry cut out of the syllabus of medical students. The third part, on organic chemistry, is in some ways perhaps the least satisfactory of the three; the author has here attempted an almost impossible task, and the subject is treated in too sketchy a manner to serve the needs of students.

As a book of reference for biologists and others the work may be recommended on the whole, since it contains a wealth of up-to-date biochemical information which has not yet been incorporated in text-books on biochemistry. It is stated in the preface that the book is addressed to biologists, pharmacists, medical men, and agriculturists, as well as to technical chemists who wish to obtain information upon subjects in which they are not themselves specialists; but the author furthermore claims that it should be of use to any educated person wishing to obtain an insight into the workshop of the chemist. Whether it is possible to write a text-book appealing to such a heterogeneous type of audience remains doubtful, but there can be no doubt that the compilation is a very readable one.

New Inventions.

PORTABLE LIGHTING APPARATUS FOR OPHTHALMIC WORK.

Some years ago, when commencing refraction work in schools scattered over the area of the county of Durham, I was forced to evolve a source of light that would be sufficient, reliable, and easily portable. Through the kindness of my friend, Dr. A. C. Norman, my attention was drawn to the desirability of using electric light supplied by an accumulator. I have gradually improved on the original, and the improved instrument is shown in the illustration. A polished metal spring head-band, with an eight candle-power frosted lamp at its centre, is placed across the child's head from occiput to forehead. This lamp is connected by eight feet of flex, with a four-volt accumulator which stands on the floor near the child. A threaded screw placed near the lamp makes or breaks the contact. The accumulator will give sufficient output for 100 average refractions. The eight candle-power lamp gives ample light. If it be desired to use the light for direct examination of the fundus or for inspection of the cornea, the metal band is lifted off the head, and thus one is able to hold the light in any position. Apart from its portability, the light when on the head has the advantage of moving as the patient moves—a considerable advantage where a restless child is concerned. At the Durham County Hospital I use this same lamp for all purposes, and I obtain current by attaching the terminals to a pantostat. Oculists who may be called upon to see private patients in houses where the light is not too accessible and where the electric ophthalmoscope does not give sufficiently intense illumination, will find this portable apparatus of considerable service.



Messrs. F. Davidson and Co., 29, Great Portland-street, London, W. 1, supply sets to medical men.

Arthur T. Paterson, M.D., F.R.C.S.E., D.P.H.
Durham.

THE LANCET.

LONDON: SATURDAY, DECEMBER 29, 1923.

GASTRIC ULCERATION.

The thoughtful surgeon has an inveterate conviction of the ephemeral nature of his work. He knows that there can be no finality in surgery until surgery is banished from the treatment of disease. Eventually, injury alone will demand the exercise of surgical skill. This change is slowly but surely taking place before our eyes. Not many years ago the excision of tuberculous cervical glands was amongst the commonest of operations performed in a London hospital; now it is almost a rarity. Improved methods of combating disease have allowed us to dispense with the resort to the knife. Dr. A. R. Neligan reminds us in this issue how, in the treatment of liver abscess, open incision is giving place to aspiration. The same revolution has taken place in the treatment of tuberculous joints, whilst it seems fairly safe to predict the elimination of surgery in the treatment of malignant disease when the secrets of this scourge have been revealed to scientific investigation. It is therefore to be accredited as a virtue, when a surgeon is found to relinquish an established method for one he finds more effective in accomplishing his purpose. These truths of surgery are driven home by Sir Berkeley Moynihan in two recent lectures on the Treatment of Gastric and Duodenal Ulcer.[1] "A physician doomed to practise surgery," as the author calls himself, Sir Berkeley Moynihan has brought an essentially critical mind to bear upon problems arising out of an experience of no less than 718 cases of ulceration of the stomach and duodenum, where the diagnosis was established by actual inspection on the operating table. The conclusions to which he has been impelled by sheer weight of evidence demand our attention and enforce our belief.

In the diagnosis of a gastric ulcer the author relies upon two things, the history of the illness and the radiographic examination. There is only one way of establishing the existence of an ulcer beyond dispute. It is to see it. X rays will often render the ulcer visible before the withdrawal of the "curtain of the anterior abdominal wall." As to the symptoms, there is a rhythm which is characteristic of gastric ulcer, another significant of duodenal ulcer, and a sort of rhythm of activity alternating with apathy, with a period lasting over weeks or months. Punctuality in the onset of pain or relief from it is of diagnostic import. In this series of cases, duodenal ulcer was encountered much more often than gastric ulcer, and Sir Berkeley Moynihan maintains that the latter is seldom within 2 inches of the pylorus and so does not commonly give rise to pyloric stenosis. Narrowing in this region is the result of extension of duodenal ulceration, a process which may go beyond the pylorus into the stomach itself, where a malignant change may supervene. It is possible at this stage to come to some conclusion of value concerning that difficult decision as to the efficacy of medical methods of treatment at our disposal. Medical treatment rarely leads to sound healing and demands such enduring care on the part of both patient and physician, that it becomes too irksome as a practical measure for those who must take part in the ordinary intercourse of the world. Sir Berkeley Moynihan, in cases where the only possible operation was a jejunostomy, has been able to watch the alteration in X ray appearances from time to time. He finds that healing, as evidenced by change of shadow outline, is always a matter of many months and in some cases of years. Neither is the disappearance of the niche, as seen by barium meals, always proof of healing. This fallacy was demonstrated by E. Hollander.[2] Many gastric ulcers resemble those intractable leg ulcers which repeatedly break down and persist until the end of life. It is without exaggeration to say that the medical mortality from perforation and hæmorrhage is vastly greater than that incidental to surgery, which in a very high percentage of patients leads to a permanent cure. In Sir Berkeley Moynihan's large personal series, there has been no operative death since 1912. There is one other argument brought forward to support the surgical attitude in the treatment of gastric ulcer, the belief that cancer arises in the simpler lesion. This does not carry the weight of the considerations set forth above, for a very competent group of pathologists deny the frequency of malignant degeneration on firm histological grounds. Cancer, according to them, does sometimes originate in the margin of an ulcer, but quite rarely.

However this may be, surgery seems definitely to have established itself as the only effective treatment for gastric ulcer. What should be the method of surgical attack is an almost equally vital question to decide. Opinion is not quite unanimous yet on this point. Sir Berkeley Moynihan has tried many procedures. Generally speaking, he has concluded that gastrojejunostomy is most widely applicable and effective in duodenal ulceration, whilst excision of the pyloric segment of the stomach with lateral implantation into the jejunum by the "no-loop" method, devised by himself, is almost ideal in the treatment of the gastric lesion.

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INSANITY ON ARRAIGNMENT.

Of the minor points arising out of the recent report of the Committee which has been considering the legal effects of insanity in criminal trials there was one—not covered by our recent summary—which has not had to wait long for illustration. A young man was found guilty of the murder of a woman in a taxi-cab in the Brompton-road. There had been a preliminary question of his fitness to plead to the charge. Dr. W. N. East, senior medical officer of Brixton Prison, expressed the opinion that the man was unfit to take his trial. Mr. Justice Avory, however, with some remarks upon the divergence between medical and legal views, instructed the jury that, if the man was able (as he seemed to be) to follow what was going on in court, they could say that he was fit to plead. The jury found him fit to plead, and the case proceeded, with the result already stated. We alluded to this case more in detail under the heading of Medicine and the Law, and need only note here that the divergence of opinion to which the judge referred was merely the notorious difference between legal and medical conceptions of insanity. Had the jury found the man unfit to plead, his subsequent treatment would have occasioned a further divergence of opinion which is worth examination.

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[1] Gastric and Duodenal Ulcer. By Sir Berkeley Moynihan. Bristol: John Wright and Sons, Ltd. 1923. Pp. 48. 2*s*. 6*d*.

[2] Jour. Amer. Med. Assoc., 1923, lxxx., 29.

Before the stage is properly set for the drama of a criminal trial there are three important preliminaries. The first is the arraignment of the prisoner—i.e., the bringing of him *ad rationem*, to a reckoning, by reading the indictment to him. The second is his plea, which, with certain technical exceptions, is either "Guilty" or "Not guilty." The third, if he pleads "Not guilty," is the joining of issue between him and our Lord the King, that issue which the jury is summoned to try. But if the prisoner is insane, if the arraignment means nothing to him, and if he cannot make his plea to it, there is a deadlock. There may therefore be a preliminary issue as to his sanity. Upon his arraignment either the prosecution or the defence is allowed to raise the question of the prisoner's fitness to plead. Then if he is found insane by a jury impanelled for the purpose, so that he cannot be tried upon the indictment, the court must direct this finding to be recorded and the accused to be kept in custody till His Majesty's pleasure be known. This procedure is ordained by Section 2 of the Criminal Lunatics Act of 1800, an Act passed after the trial of HADFIELD for shooting at King GEORGE III. in Drury Lane Theatre. The point the jury has to decide is whether the accused is insane at the time of the arraignment, not at any other time. The test laid down by judges in the past is whether he is of sufficient intellect to comprehend the course of the proceedings so as to make a proper defence, to challenge a juror to whom he might wish to object, and to understand the details of the evidence. The result of a finding of insanity on arraignment is that the prisoner, who may be entirely innocent of the crime, is forthwith treated as if he had been found guilty but insane, and is sent to a criminal lunatic asylum. It is at this point that the medical and the legal views seriously diverge. The Medico-Psychological Association, emphasising the injustice to a possibly innocent man, suggests that in these cases a plea of "Not guilty" should be entered, and that the trial should proceed, arrangements being made for representation of the interests of the accused. The British Medical Association recommends that persons found unfit to plead should have a right under proper conditions to apply to a High Court judge for an order that the issue of fitness to plead should be re-tried. To this the report of the recent Committee replies that, if a man is insane, it is a burlesque to proceed with his trial: that the standing orders of the Prison Commissioners (which recommend that a prisoner be left to stand his trial unless there are strong reasons to the contrary) represent the present practice and are satisfactory; that a prisoner should not be found unfit to plead except upon the evidence of at least two doctors; and that from a finding of insanity upon arraignment there should be no appeal.

We are left, therefore, in the improper and indefensible position that in these cases a possibly innocent man—or rather a man deemed innocent by law because not yet found guilty—is put away, perhaps for life, in a criminal lunatic asylum. If his relatives complain, the legal answer seems to be that usually in these cases, if the man recovers and is tried, the result is a verdict of "Guilty but insane." This is an odd perversion of the doctrine of the presumption of innocence. It is perhaps worth adding that, as the trial proceeded in the taxi-cab case, a considerable volume of evidence as to insanity was adduced without effect. The same remark might be made of another case also tried lately at the Old Bailey, in which an unhappy woman was found guilty of murdering her four-months-old illegitimate child by strangling it, and afterwards throwing the body into a brook. It was proved that her father and aunt had been certified lunatics, that an uncle had also been confined in an asylum, and that the prisoner herself was mentally deficient. She was not insane, however, in the eyes of the law. This latter case was labelled in the press as one of infanticide. In a popular sense it was; technically it was not. It may be remembered that under the Act of 1922, which created the new legal offence of infanticide, a more lenient punishment can be awarded when a woman causes the death of her newly-born child, "but at the time of the act she had not fully recovered from the effect of giving birth to such child, and by reason thereof the balance of her mind was then disturbed." The fact that such an Act should have been necessary is in itself a condemnation of the legal treatment of insanity in criminal trials.

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STRAINS OF THE DIPHTHERIA BACILLUS.

SUBDIVISION within the species into varying numbers of serological strains is being gradually extended to embrace a very large number of pathogenic organisms. Sometimes the matter is of great practical importance in treatment, since sera potent against one individual may be useless against another. This holds particularly with the pneumococci, but is of much less importance with a toxin-producing organism, such as tetanus, which seems to produce the same toxin, neutralisable by one and the same antitoxin, whatever be its serological type. The matter stands similarly with regard to another toxin-producing organism, the diphtheria bacillus. It has comparatively recently become recognised that this organism, too, can be split into groups on the grounds of their agglutinability with single sera prepared from a number of single strains. Dr. W. M. SCOTT[1] has recently investigated this now well-established fact, with special reference to the status of those organisms which, though closely allied to the diphtheria bacillus, have been excluded from the pale by most human bacteriologists on the ground that they do not produce toxin. He has also studied the question of the special activity of one or other of these serological strains in epidemics. Dr. SCOTT has compiled eight agglutinating groups which include 184 of his total of 265 strains, leaving 81 strains still unidentified. This well exemplifies the complexity of such a grouping, since to include the whole of these strains under serological headings would necessitate the formation of a very unwieldy number of groups.

The most interesting fact which emerges from this classification is that the majority of bacilli obtained from actual cases of the disease fall into one set of groups, whilst in the "carriers and contacts" there is a marked shift of the distribution into another set, which latter occur only in a small minority of actual cases of the disease. Likewise the percentage of unidentified strains, which is only 13 in the acute cases, rises to 30 in convalescents, and 51 in the contacts and carriers. These facts can only mean, so it seems to us if we accept the usual carrier conception, that the serological type changes in convalescence or in transference to another host. It would be interesting to have included an analysis of the distribution of such bacilli in normal persons who have not been in special contact with diphtheria cases. It must, if this interpretation be true, also follow that where such a carrier infects a fresh subject the organism must revert to one of the serological groups which predominate in the acute disease. This matter is one of great importance in any consideration of the rôle of the carrier in diphtheria. Either these extraordinary mutations occur, or the importance of the carrier has been misconceived, or the observations are incorrect; and we have no reason for believing that the last alternative is the correct one. Dr. Scott includes within his group non-toxin-producing strains which cannot be excluded by ordinary morphological and cultural characters. If the agglutination characters of the bacilli are as labile as the forementioned considerations would suggest this does not seem quite justifiable. After reading his paper, and in view of Hartley's showing that all pathogenic diphtheria bacilli produce the same kind of toxin, we are more satisfied than ever that the only satisfactory final criterion of the diphtheria bacillus, not for clinical diagnosis but for practical bacteriological differentiation, is its ability to produce toxin.

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[1] Reports on Public Health and Medical Subjects, No. 22, Ministry of Health. H.M. Stationery Office. 2*s*.

Annotations.

"Ne quid nimis."

ALCOHOL INJECTIONS FOR NEURALGIA.

At a recent meeting of the Section of Otology of the Royal Society of Medicine Mr. Arthur H. Cheatle showed three patients who had sustained damage to the ear following the injection of absolute alcohol through the face for the cure of neuralgia. In two there was injury to the middle ear and in one to the auditory nerve. The first was a man aged 71, who had severe deafness and some discharge from the left ear immediately after the injection a year previously. He did not have pain, giddiness, or tinnitus, but there was temporary paralysis of the facial nerve. The second case was that of a man aged 72, who, following a similar injection two years previously, had severe deafness, tinnitus, and a slight discharge. There was no giddiness, pain, or facial paralysis. The neuralgia was cured. No doubt in this case the alcohol entered the Eustachian tube and reached the middle ear. Both these cases had a general anæsthetic for the operation, and Mr. Cheatle pointed out that if it were done under local anæsthesia, according to the custom of Dr. Wilfred Harris, the patient could give warning of anything wrong. The third case was that of a woman aged 22, who had complete deafness on the left side following the spirit injection under a general anæsthetic nine months previously. There was also immediate giddiness and paralysis of the sixth and seventh nerves. She had been very ill in bed for five months, and her neuralgia was not cured. Subsequently, the Gasserian ganglion was removed; this cured the pain, but entailed the loss of an eye. Apparently the spirit had reached the subarachnoid space and directly injured the sixth, seventh, and eighth nerves. In all the three cases the injection was carried out by experts. At the same meeting Mr. T. B. Layton described a case in which the injury produced on a middle-aged man by injection of alcohol for the same purpose was much more severe. He had lost the left eye, and on the right he had corneal ulceration; he spoke in a high falsetto voice, and he was very deaf. The left side of his face was paralysed. In all he had had ten injections, most of them in the Far East. Mr. Sydney Scott, the president of the section, said he had heard of such cases but had not seen any. He had used absolute alcohol for destroying the internal ear. As the spirit spread rapidly, it was necessary to use only a minimal quantity so that none was allowed to reach the middle ear. The measure was only carried out by him in extreme necessity. Sir William Milligan said he had not much experience of these injections, but he knew of cases in which they had done irreparable damage, some in which it had been necessary to remove an eye. Relief in some cases he knew of lasted from 9 to 18 months, but others gained no relief by it at all.

The avoidance of accidents when alcohol is injected for the cure of trigeminal neuralgia deserves close attention. Pricking the Eustachian tube should be a well-known danger to those accustomed to giving such injections. Under local novocaine anæsthesia the patient will always complain of a pain deeply situated in the ear if the needle reaches the Eustachian tube, and when this occurs the needle should be withdrawn about an inch and then pushed slightly forward. Novocaine probably does no permanent injury if injected into the Eustachian tube, and if the rule be scrupulously followed not to inject spirit until anæsthesia results from the preliminary novocaine, no harm will come. Thus to secure safety under general anæsthesia, novocaine alone should be injected in one spot only, and the patient allowed to come round sufficiently for testing the two sides of the face with a pin, while the injecting needle is left in situ. If the desired anæsthesia is found to have resulted, then the alcohol syringe is fitted on and the injection completed, a further whiff of general anæsthetic being given if thought desirable. If no anæsthesia has resulted from the novocaine, then no spirit should be injected, but a fresh search made for the nerve. Usually it is unnecessary to give much further anæsthetic for this. The practice of making a rapid injection in the direction of the foramen ovale under a general anæsthetic, and assuming that by doing so one has injected the third division of the trigeminal nerve, is to be rejected. The procedure is not by any means so easy that it can be done without care, but the nerve is there to be found if the operation be conducted with patience and deliberation, and there should be practically never any failure. In the third case described by Mr. Cheatle the catastrophe appears to have happened after the needle had penetrated the foramen ovale in the endeavour to inject the Gasserian ganglion under general anæsthesia, the sudden injection of a quantity of alcohol into the subarachnoid space causing widespread and permanent paralysis of cranial nerves. Had the injection been done a few drops at a time, after letting the patient come round partially from the anæsthetic, the operator would have been warned of danger by the appearance of nystagmus, vertigo, and commencing facial paresis. Then with the cessation of the injection the symptoms would almost certainly have passed off in a few minutes or an hour at most. The duration of relief from the neuralgia is, we would suggest, better than Sir William Milligan suggests. In an article on the technique of these injections contributed to our columns [1] last year Dr. Wilfred Harris states that freedom from the neuralgia may practically be guaranteed for 12 months if the nerve has been properly hit, and in the majority of his cases the immunity from pain was much longer, ranging up to 13 years in one case. Four and five years was a common period for the immunity to last in his experience. In the Gasserian injections there is no reason why permanent relief should not be expected, the anæsthesia obtained being as complete as that after Gasserectomy.

MEDICAL MILITARY PREPAREDNESS.

Military medicine will never flourish unless the medical student becomes interested in it during his years of training. In the November issue of the *Military Surgeon*, the first number entirely edited by Major E. E. Hume, U.S.M.C., an active service officer, the best way of training the medical student to understand the work of the military medical officer is discussed by Lieut.-Colonel H. H. Rutherford. He thinks this can be done, in spite of the already crowded time-table, if he can get specially good instructors, a very high-class text-book, and is allowed to pick only high-grade students for the course, which will occupy 240 hours in the early years and a spell in camp at the end of the last year. In the same issue Major L. H. Bauer, Commandant of the School of Aviation Medicine, sketches the training given to the reserve medical officers of the U.S. Air Service. They are divided into three classes—flight-surgeons, examiners, and specialists. These all belong to the outside profession; they are busy men, and while they must be instructed, it is most important that their time shall not be wasted; accordingly the first class are given two correspondence courses through two winters, with a short basic course of practical work in the summer. The first winter's course deals with the eye and ear, the heart, and neuropsychiatry; the second course develops these subjects further and takes the student over Air Service administration, all this by correspondence, but everything is gone over again, practically, in the summer basic course. It is felt that the reserve officer will now be a better practitioner than before, and, if he passes the examination after the first year, he will be allowed to make the physical examination for flying, and having passed after the second course will be rated flight-surgeon. Selected officers will have a six weeks' training at the Aviation School. Those who succeed will be qualified as examiners. The third class are research workers, physiologists, eye specialists, and the like, who will be called to act as instructors in the school. It is hoped that "by the time of another emergency" America would have flight-surgeons, physical examining units, and specialists ready to step in and aid in the rapid expansion of the Air Service. In a third article Colonel G. M. Blech, one of the founders of the Medical Officers' Reserve Corps, explains to young members, already highly educated doctors, why they should interest themselves in learning something of tactics, how much more useful that knowledge will make them in battle, and how easily the necessary knowledge may be acquired. The whole number is full of the need for preparedness.

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[1] The Lancet, 1922, ii., 123.

INTERNATIONAL CONGRESS ON INDUSTRIAL HEALTH.

A group of Swiss medical men interested in industrial health questions met at Berne last October and constituted themselves as the Swiss Organising Committee for an International Congress on Industrial Health to be held at Geneva from July 18th–20th, 1924. The committee consists of Prof. W. von Gonzenbach (Zurich), Prof. W. Silberschmidt (Zurich), Prof. H. Zangger (Zurich), Dr. A. Rossi (Lugano), Dr. H. Carrière, Director of the Public Health Service, and Prof. H. Cristiani (Geneva), the last named being chairman. This first congress will deal with the following questions: industrial lighting and eyestrain; impure air in factories; the value of fatigue tests. The committee has asked prominent men of science who have given special attention to these questions to draw up reports on them, and three such reports will be presented for each question. The office of the committee is at the Institut d'Hygiène of the University of Geneva, and all persons wishing to take part in the congress should communicate with the committee at that address, from which further information may be obtained.

ACTINOMYCOSIS OF THE HEAD AND NECK.

In a recent communication to the Pacific Northwest Medical Association, Dr. Gordon B. New and Dr. Fred A. Figi,[1] of the Section on Laryngology, Oral and Plastic Surgery of the Mayo Clinic, illustrated the frequency with which actinomycosis of the head and neck escapes recognition. They gave the following statistics. During the decennium 1913–22 inclusive 157 patients with actinomycosis were examined at the Mayo Clinic. In 107, or 68·1 per cent., the disease involved the head and neck, but only seven of these patients were being treated for actinomycosis at the time of their admission to the clinic. The disease is much commoner in males than in females, 98 of the 107 cases being in males. The ages ranged from 9 to 66 years, but the majority of the patients were in early adult life. As regards the method of infection, 45 out of 80 patients, or 56·1 per cent. from whom information could be obtained, stated that they had not come into contact with the disease in animals. The remaining 35, or 43·7 per cent., had been more or less closely associated with the disease in animals before they developed symptoms themselves. In no case was there evidence of direct transmission from one person to another. The clinical picture of actinomycosis of the head and neck varies according to the virulence of the infection and the amount of secondary infection. The commonest symptoms are stiffness in the region involved, pain, and swelling. The jaw may begin to tighten and even become completely ankylosed. Pain is sometimes severe, or may be completely absent until the mass breaks down. In some cases dysphagia may be an early symptom, especially if the base of the tongue or anterior cervical region is involved. Sore throat, stiffness of the neck, and earache are occasional symptoms. The activity of the process varies from a slow indolent condition, which takes months or years to reach its full development, to a fulminating one of a few weeks' duration. The commonest type is that of an indurated mass which breaks down forming multiple superficial abscesses. The disease is liable to be mistaken, as was illustrated in the writers' series, for malignant growth, tuberculous adenitis, osteomyelitis of the lower jaw, thyroglossal duct sinus, subperiosteal abscess, and tuberculous thyroiditis. The most important factor in the treatment is early diagnosis. In advanced cases intracranial extension may develop or the chest may become involved. In addition to iodides, which are almost specific and should be used in progressively increasing doses, radium has proved beneficial by causing a breaking down of the granulomatous masses and clearing up the induration. Surgical treatment consists in opening up widely all pockets, packing them with iodoform gauze, and swabbing the wounds with iodine. Of 85 cases which could be traced by the writers, 60, or 70 per cent., were well five years or less after their discharge, 7 were dead, and 18 were still under treatment.

OPIUM AND DYSPNŒA.

The term dyspnœa is one which is difficult to define exactly, but it may be taken to mean a condition in which the normal sequence, rhythm, and character of the acts of respiration are disturbed, whether subjectively or objectively. In the healthy subject, the normal control of respiration lies in the activity of the respiratory centre of the medulla. This centre is regarded as being capable of automatic activity and of sending rhythmic efferent impulses to the muscles that perform the movements of respiration. The activity of the centre is known to be affected by four influences which are independent of volition—namely, (1) the pressure of CO_2 in the blood supplied to the centre, (2) the H-ion concentration of the blood supplied to the centre, (3) the pressure of oxygen in the blood supplied to the centre, and (4) the afferent impulses reaching the centre, which may come from the higher centres, as shown in the effects of volition and emotion. Many investigators have worked on the problems presented by these several factors, and their results show that disturbances of the respiratory mechanism can result from (1) alteration in the CO_2-content of the blood supplied to the respiratory centre—increase in this content causes increased breathing, with acidæmia and raised CO_2 pressure; (2) alteration in the fixed acids in the blood, so that increase in the acids causes increased breathing, with acidæmia and lowered CO_2 pressure; and (3) alteration in the oxygen in the blood supplied to the centre, so that deficiency causes increased breathing, with alkalæmia and lowered CO_2 pressure. Oxygen-lack causes mainly increase in the frequency of breathing, while increased CO_2 pressure and increased fixed acids cause mainly increase in the depth of breathing.

Among the investigations reported on clinical cases of cardiac dyspnœa, each of these three types of chemical change has been found, plus dyspnœa due simply to mechanical causes, as œdema of the lungs. The whole subject was discussed by the Royal Society of Medicine on broad lines at a recent meeting of the Section of Therapeutics when Dr. Claude Wilson read a paper which we published last week. Dr. Wilson divides cardiac dyspnœa clinically into two distinct types: (*a*) Ordinary breathlessness as an immediate consequence of exertion, and (*b*) paroxysmal dyspnœa, subdivided into Cheyne-Stokes breathing and cardiac asthma, for the treatment of which latter type he recommends the use of opium. The indications for such treatment would appear to be borne out on physiological grounds by the data collected by Prof. F. R. Fraser, who introduced the subject in a comprehensive review of recent research in this field. Prof. Fraser quotes the investigations of many workers on differing clinical types of cardiac dyspnœa, and comes to the conclusion that, if the present explanation of the causes of dyspnœa is correct, then any treatment that is to affect the fundamental cause of the dyspnœa—that is to say, oxygen deficiency through stasis—must be directed towards improving the efficiency of the circulation. Administration of oxygen can only be useful when the arterial blood is deficient in oxygen. The rapid shallow breathing of cardiac dyspnœa is peculiarly ineffective in correcting the disturbance, as it permits of stasis in the bases of the lungs and deprives the respiratory movements of much of their value in aiding the circulation. The administration of morphia causes slowing of the respiration, with the result that, clinically, the circulation of the patient would seem to be stimulated and his general condition improved. Thus morphia apparently does more than simply check a symptom. In the treatment of paroxysmal dyspnœa with progressing œdema of the lungs, not only do the respiratory disturbance and distress diminish, but the œdema of the lungs may clear. If such paroxysms, with or without the development of œdema, are due to an exacerbation of the failure of the left ventricle, as seems most likely, then the essential cause of the dyspnœa will be the same as in simple cardiac dyspnœa—namely, oxygen-lack at the centre. This will result in lowering of the carbon dioxide pressure and alkalæmia, and since the dyspnœa continues, the centre must be acting at a lowered threshold to H-ion concentration. This is the conception of Haldane in the condition of oxygen-lack in healthy people. Morphia depresses the centre, so that it reacts at a raised threshold. The effect of treating cases of dyspnœa with morphia would therefore be to raise the threshold so that the centre reacts only to a higher H-ion concentration than before. This would have the effect of restoring the carbon dioxide pressure throughout the body and in the medulla to a more normal level. Prof. Fraser emphasised the need of carefully ascertained facts in the study of this condition, and concluded a valuable paper by laying down an important axiom. The use of drugs in order directly to affect the dyspnœa with benefit to the patient cannot be clearly understood until the conditions of the centre and the afferent impulses, and the actions of such drugs on the centre and on the afferent impulses, are elucidated.

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[1] Surgery, Gynecology, and Obstetrics, November, 1923.

POST-GRADUATE MEDICAL EDUCATION.

For some years past the need for greater facilities for post-graduate instruction has been recognised in this country, and various attempts have been made to remedy the defect. The Fellowship of Medicine is doing excellent work in providing access to the clinical teaching of the various London hospitals and in arranging a number of lectures for post-graduate students, while the West London and the Prince of Wales's hospitals are devoting all their clinical material to post-graduate teaching. But while these efforts do fill a very definite place, they are chiefly of use for the general practitioner, or for those who have only a very limited time at their disposal. Training for the specialist is still inadequate. E. P. Lyon[1] gives an interesting account of the way in which the problem is being solved in the University of Minnesota. The chairman of a committee on post-graduate instruction investigated how men became surgeons, urologists, oculists, and so forth.

> "He found, taking the good ones, that the chief method that has been used in the past and that is in use now is that they should serve as assistants in a good clinic for two, three, or more years. The doctor calls his helpers assistants; but from the young men's standpoint, they serve their assistantship for the purpose of becoming efficient in the speciality. Now our idea is that those young men be regarded as students and not as hired men. If you go to the Mayo Clinic or the University Hospital you will see young men working there. They will look to you like assistants, and they are assistants; but we take a different view regarding them. We say they are not the servants of the clinic, but primarily students. We call them Fellows. As soon as you make that slight transition in regard to your assistant, you have made a great difference in your attitude toward him and in his attitude toward his work. You lay out a man's programme not with reference, primarily, to how he can best help you, nor how he can best contribute to the efficiency of the hospital or clinic, but how you can best help him . . . You would hesitate to send an assistant perhaps to the anatomical or pathological laboratory, for three or six months and pay his salary; but we do not have any hesitancy in sending these men, if that is what they need."

Here we notice a vital difference between the method used in the University of Minnesota and that in vogue in any of the British medical schools, and the Mayo scheme might be worthy of the consideration of those responsible for post-graduate instruction on this side of the Atlantic.

OZÆNA AND DIPHTHERIA.

Dr. R. Kawano,[2] of the Vienna State Institute for Serum Therapy, alludes to the investigations of Beck and Brodt, who in a paper read before the second annual meeting of German oto-rhino-laryngologists, stated that in 32 out of 36 cases of ozæna they found diphtheria bacilli present, and in only five out of 30 cases of non-fœtid atrophic rhinitis. According to these investigators, the fœtor in ozæna apparently depended on the presence or absence of diphtheria bacilli; in other words, it was absent when the examination for diphtheria bacilli was negative. They also found that patients with ozæna had a relatively high antitoxin content in their blood as compared with patients suffering from atrophic rhinitis, and regarded this as a sign that the ozæna patient had had at some time an attack of diphtheria. On the other hand, Dr. Kawano, on examination of 65 cases of ozæna, found bacilli of the diphtheria group present in the nasal discharge only eight times, or in 12 per cent. Moreover, in not a single case were they true virulent or non-virulent diphtheria bacilli, but only pseudo-diphtheria bacilli. Even these pseudo-diphtheria bacilli were not absolutely identical with one another, but consisted of different representatives of the group, as was proved by experiments on animals and agglutination reactions. The supposed relationship of the fœtor of ozæna to pseudo-diphtheria bacilli was therefore open to doubt. The high antitoxin content of the blood in ozæna patients found by Beck and Brodt is regarded by Dr. Kawano merely as a coincidence. There are cases of ozæna with a low antitoxin content, as well as cases with a high antitoxin index, just as occurs in normal persons. There are, therefore, no grounds for supposing that ozæna patients must necessarily have had an attack of frank or latent diphtheria. Dr. Kawano also found that the changes produced by the action of diphtheria toxin on the mucous membrane of the nose and turbinate bones differed histologically from those caused in the rabbit's nose by the production of experimental ozæna, which bears a considerable resemblance to the lesions of human ozæna.

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[1] Papers from the Mayo Foundation, vol. ii., 1921–1922.

[2] Wiener klinische Wochenschrift, Oct. 18th, 1923.

VACCINATION BY THE MOUTH.

THE idea of attempting to immunise animals by the buccal route is no new one. Pasteur essayed it in his experiments on anthrax in 1880, but the results obtained were not encouraging. In the interval various rather sporadic attempts at vaccination by this route have been forthcoming, but interest in the matter languished until stimulated again by Besredka's work on typhoidal infections, which we have already noticed in previous issues. A critical survey of the present position of the subject is given by Prof. A. Calmette in the October issue of the *Annales* of the Pasteur Institute, and is worthy of being consulted by all who are interested in this matter. After surveying the physiology of the intestine in reference to its microbic flora, he passes to a consideration of the different conditions in which oral vaccination has been claimed to be useful. These include infections so widely differing as the typhoids, dysenteries, cholera, Malta fever, tuberculosis, diphtheria, plague, and septic infections. The chief interest, however, centres around the use of oral vaccination in typhoid and dysentery. For the former the method has been tried in France in two human epidemics. In each of these cases the subsequent incidence of the disease in those who were vaccinated by the mouth compared very favourably with the incidence in those vaccinated in the ordinary way by the T.A.B. vaccine ; in neither case, however, were the conditions sufficiently well controlled to enable exact deductions to be made. The possibilities of this method of immunisation has perhaps even greater interest in connexion with bacillary dysentery, in which disease attempts to inoculate on the lines familiar in typhoid have notably failed, on account of the great toxicity of killed cultures of these organisms and the violent reactions which their injection provokes ; hence, if the oral route were found satisfactory it would be a very great gain indeed. Experiments on animals have been encouraging, and the human experiments of Nicolle and Conseil, which we have previously noted, are promising, but the method has yet to be tested on a large scale. Calmette concludes that the method is only, as yet, in the early days of its trial, and, especially with regard to the typhoidal diseases, he utters a warning against the possibility of the hurried abandonment of current methods whose efficiency has been proved, in favour of others, easier of application, but as yet of doubtful value.

INCUNABULA.

WHAT are incunabula ? The original meaning of the word is swaddling clothes, then it came to mean "origins" or the early stages of anything, and finally it was applied by the Germans with the particular meaning of early printed books. "Incunabula Medica: A Study of the Earliest Printed Medical Books, 1467–1480,"[1] takes its title from the presidential address delivered by Osler on the occasion of his election for the second time as President of the Bibliographical Society in 1914. The address as printed is not the address as delivered by Osler, but has been expanded by the addition of some bibliographical details obtained by Mr. Scholderer, assisted by Dr. Francis and Dr. Malloch. The book also contains a list of medical works printed before 1481, edited by Mr. Scholderer, two indices, the one of authors and books and the other of printers and places, together with 16 facsimile plates of pages from early printed books. There is a learned and charming preface from the pen of "A. W. P.," who, we imagine, must be Mr. A. W. Pollard, giving an account of Osler's connexion with the Bibliographical Society ; he served as President for seven years. Mr. Pollard is Keeper of the Printed Books in the British Museum and Hon. Secretary of the Bibliographical Society, and we gather from the preface that he is responsible for the shaping of Osler's address for printing. Issued under such auspices it is no wonder that the book as a whole is a real treasure for book-lovers, while the format, the printing, and the plates are worthy of the high standard of the Oxford University Press. Osler's address is the very man himself, learned, cultured, and written both as regards matter and manner in a way which would have delighted Richard of Bury, the famous book-loving Bishop of Durham. It deals with 67 medical writers, whereas Mr. Scholderer's list contains some 218 entries, although these, of course, are not all separate authors. Osler's conclusion is that "one cannot say that, for the first twenty-five years of its existence, printing did much, if anything, to free the profession from the shackles of mediævalism. Not until the revival of Greek studies did men get inspiration from the true masters of science."

Every medical man interested in medical history should read this book and every book-lover too, while as a cognate study we recommend a little book, not too well known, called the "Wanderings and Homes of Manuscripts," by that finished scholar and humanist, Dr. M. R. James, Provost of Eton. Books are not everything, but good books represent the ordered arrangement of the experience and mental output of many generations, and to use the words of the above-mentioned Richard of Bury in his allocution to books, they "are the wells of living waters, which father Abraham first digged, Isaac digged again, and which the Philistines strive to fill up."

THE PANDEMIC OF INFLUENZA IN INDIA IN 1918.

Dr. E. S. Phipson,[1] health officer of Simla, devotes his London M.D. thesis to the consideration of the pandemic of influenza in India, with special reference to the city of Bombay, of which he was recently the assistant health officer. After a review of past epidemics he describes the genesis of the 1918 outbreak. Apart from influenza the latter half of 1918 was unusually free from epidemic disease ; the incidence of plague was the mildest for 20 years, and the failure of the monsoon had caused a subnormal incidence of malaria. On the other hand, the stock of food was relatively low, the rainfall was subnormal. Prices were everywhere abnormally high, and the war had greatly depleted the medical staff, which at the best of times was inadequate for the enormous population. The first phase of the epidemic occurred in June and lasted barely four weeks, during which time the epidemic cost Bombay over sixteen hundred lives, at least a million working days, and an incalculable amount of discomfort, expense, and inconvenience. The second phase began after about an interval of two months on Sept. 10th, reached its height on Oct. 6th, and subsided in the second week of November. It differed from the first phase by the far greater frequency of complications. Broncho-pneumonia, which tended to assume a markedly toxæmic type, was responsible for the majority of deaths, and was as fatal to strong adults as to young children, and the old and debilitated. The mortality from influenza in Bombay City during the second phase, though very much less than that in India as a whole or in certain provinces such as the Central Provinces and Delhi, was 14,678, which was equivalent to 13·3 per 1000 of the estimated population or considerably more than three times the mortality occurring in the urban populations of England and Wales during the three epidemic waves of 1918–19. The combined mortality for all the hospitals in Bombay City was 34·21 per cent., but as only the worst cases and members of the poorest classes were admitted, this figure could not be regarded as an index of the case mortality in the general population ; 36·2 per cent. of the deaths occurred among persons aged 20 to 40, the highest mortality—61·6 per 1000 of the community—being among low caste Hindus and the lowest mortality—8·3 per 1000—among Europeans.

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[1] By the late Sir William Osler, Bart., M.D., F.R.S., Regius Professor of Medicine, Oxford. Printed for the Bibliographical Society at the Oxford University Press. 1923. With 16 facsimile plates. Pp. 137.

[1] The Indian Medical Gazette, November, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LI.—TREATMENT OF CHRONIC COLITIS.

A WRITER on chronic colitis is in the outset dismayed by the fundamental difficulty of definition. The term "colitis" can be employed when unequivocal evidence can be advanced of ulceration of the large bowel as in, inter alia, dysentery, tuberculosis, malignant disease, and infection by the *B. coli* and other pyogenic organisms in the condition known as ulcerative colitis. But most cases of what is generally known as chronic colitis cannot be attributed to any specific infection, whilst post-mortem evidence of any pathological condition of the bowel is lacking. To the last criticism one can only reply that the inflammation is of a catarrhal character.

Hypersecretion of Mucus.

In addition to the specific infections and malignant disease already mentioned, there are mechanical causes for irritation which alter the lumen of the bowel, such as ptoses, kinks, strictures, adhesions, and the pressure of external tumours which may lead to hypersecretion of mucus. To these must be added such irritants as scybala in chronic constipation, as well as the means adopted for relief, whether purgatives or ill-advised and unsuitable douches. Other familiar possibilities are intestinal parasites, subacute infections of the alimentary canal, and sepsis from teeth, nasal sinuses, tonsils, or pelvic viscera. Uric acid and other irritants which are excreted through the intestinal mucous membrane have similarly been blamed in this connexion,

When the well-recognised causes have been excluded there remain as a distinct group cases of primary colitis. To such a group a large variety of names has been appended, among which may be mentioned mucous colitis, muco-membranous colitis, mucous disease, intestinal neurosis, mucous colic, mucous croup, colitis pseudo-membranacea, membranous enteritis, myxoneurosis coli, myxorrhœa nervosa, tubular diarrhœa, muco-membranous colopathy. These names have clearly been coined either from a desire to indicate some ætiological belief or to emphasise some dominating symptom.

Symptoms.—Whatever disagreement exists as to the exact cause and nature of this condition there is fairly universal recognition of a symptom-complex. This includes a long history of constipation or of alternating constipation and diarrhœa; the passage of mucus in great or small quantity and in discrete jelly-like lumps or in the form of long membranous "casts"; the occurrence of abdominal pain; and the presence of a large variety of motor, sensory, and mental symptoms, some of which are attributed to auto-intoxication and most of which are conveniently, if unscientifically, lumped together as "neurasthenia." It is largely these symptoms which offer full scope for dissension, for the organicists maintain that they are the effect of some physical disability, whilst the supporters of a "neurosis," even admitting the possible influence of some infection or other physical cause, contend that it is the nervous system which is essentially at fault in responding with unreasonable vigour to a trivial stimulus. There is much to be said on both sides.

Routine Examination.

The first factor in treatment is a thorough investigation. This platitude may be true enough of any condition, but it receives special emphasis in this connexion, for nobody approaches the treatment of a case of chronic colitis without the hope that he may be dealing with a secondary colitis, the cause of which may be eradicated. The gratifying success which sometimes attends the removal of a chronically inflamed appendix with subsequent lavage through a cæcostomy or appendicostomy fistula is a tempting invitation to incriminate the appendix in many cases. But this diagnosis must be established as far as is possible by a careful survey of the symptoms; for unless the appendix is really the cause of the colitis its excision will not ameliorate the intestinal symptoms, and will in addition lower the general health on account of disappointment and of the psychic trauma which any laparotomy may produce.

Further, it should not be forgotten that a general examination may prevent the mortification of treating symptomatically some condition which demands a drastic reconstruction of one's ideas. Twice I have seen an example of rectal crises in which the dominating complaint was the passage of mucus with tenesmus, and three times a copious flow of mucus from the rectum through the pressure of a pelvic abscess; in all these cases "colitis" had been presumed. Above all, the sigmoidoscope should be employed as a routine; a local condition of the rectum or pelvic colon which must receive local treatment, or even a neoplasm may otherwise be overlooked.

Treatment of Mucous Colitis Proper.

1. *Dietetic Treatment.*—With one exception every dietetic régime has aimed at the inclusion of bland substances with little residue. Von Noorden, on the other hand, deliberately selected such articles as Graham bread and fruits with coarse skins and large seeds, with the idea of combating the constipation from which all these patients have long suffered. But by the time the patient comes for treatment she has already found that even the most drastic purgatives have lost their efficiency; the gut is in a spastic condition and any attempt to alleviate the constipation by irritating diet only aggravates it.

Selection of Diet.—According to the urgency of the case the following foodstuffs will be permitted in an ascending scale. Slightly mineralised non-effervescing waters—e.g., Evian, whey, vegetable soups, gruels, spaghetti or macaroni, milk puddings, purées of vegetables, fish and chicken, rusks, plain boiled meat or birds, purée of fruits. Combe's régime, in which a lacto-farinaceous diet predominates, is closely followed. Apart from its non-irritating character it will have some effect on the intestinal flora. In colitis the stools are usually alkaline; a diet low in protein tends to establish a milieu unfavourable to the growth of the anærobic (putrefactive) organisms.

2. *Treatment of the Bowels.*—Purgatives must be strictly prohibited with the sole exception of occasional small doses of castor oil. Psyllium seeds, agar, and liquid paraffin should be given even if, as is generally the case, they have all been utilised in the past and abandoned. In addition, olive oil injections are at once instituted. This treatment, if persisted in, is of the greatest value, both as offering a real cure for constipation and in improving the state of the colonic mucous membrane. After a little instruction these injections can be self-administered. From 8 to 10 oz. of washed olive oil warmed to 100° F. should be introduced into the rectum at a low pressure—a douche can being held or suspended only a foot above the level of the patient who lies in the knee-chest or left lateral position. The oil is retained all night, a sanitary towel being worn to prevent leakage; in the morning the bowels should be comfortably emptied. These injections must be continued nightly for at least a fortnight, and are then gradually reduced, as the bowels are found to act without assistance, until eventually only an occasional injection is required.

Whilst I emphasise the very great value of oil enemata, other methods of intestinal lavage may be admitted if skilfully performed and if the fluid employed is unirritating. The waters of Plombières and Chatel Guyon (among others) are unexceptionable, but strong sulphur waters should be rigidly forbidden. Rarely astringents may be necessary, in which case tannigen or tannalbin will be found most suitable.

3. *Relief of Pain and Flatulence.*—Belladonna is invaluable; probably all sufferers from mucous colitis are vagotonic. This drug may usefully be employed in pill form with menthol and valerian—

e.g., ext. belladonn. gr. $\frac{1}{4}$, menthol gr. $\frac{1}{2}$, ext. valerian gr. $1\frac{1}{2}$, pulv. valerian gr. i. Hot applications—e.g., compresses of flannel wrung out in hot water—will always prove comforting.

4. *Reduction of Putrefaction.*—Mention has been made of the influence of food in this connexion. Of intestinal disinfectants I cannot speak with any confidence. Lactic acid, however, is often valuable, but as patients with colitis cannot tolerate milk, a pure culture is preferable to a soured milk. Vaccine therapy is rarely admissible, based as it is on so complicated a bacteriology as that of the intestinal tract.

5. *General Treatment.*—When spa treatment leads to good results it is not easy to apportion the credit due to the climate, the routine discipline, and the suggestive effect. Yet climate is certainly of some importance. I have had the humiliation of experiencing failure after reproducing faithfully and in every detail a treatment which had been remarkably successful in Lausanne. Patients with colitis are very intolerant of cold, and advice to be warmly clad in flannel and to wear an abdominal binder should be insistent. The benefit of a few weeks in bed is explained not only by the rest but by the constant warmth. Enteroptosis is generally present, but as usual it is difficult to estimate the extent of its effect. It is certainly a contributory factor to constipation, and benefit from treatment by a suitable abdominal support is unquestionable. Whether anæmia is present or not it is well to give a course of intramuscular injections of cacodylate of iron, sodium glycerophosphate, and strychnine. Exercise must be graduated according to the inclination and physical capacity of the subject, but only open-air exercise should be encouraged. Massage, especially of the abdomen, may be of value but should be stopped if pain is produced. Galvanism has often a sedative effect on the intestinal spasm and the abdominal nervous system in general.

6. *Surgical Treatment.*—Were one satisfied, first of all that the colon itself was diseased, and secondly that it is in any case rather a superfluous organ, one might be more encouraged to consider ileosigmoidostomy or more formidable surgical procedure, of which I have had no personal experience.

7. *Treatment of the Nervous System.*—This is too vast a subject for consideration here. Unfortunately, the majority of patients develop a mental outlook which, if it has not reconciled them to a life of complete invalidism, has at least prepared them to make the worst of a bad job. So they tend to persist in a mode of living which is only too likely to perpetuate the disability—want of exercise, of fresh air, of interests and of occupation. The disappointment of previous failures and the lack of confidence engendered by the contemplation of contradictory views as to the ætiology of their condition do not contribute to an enthusiastic coöperation in what must necessarily be a prolonged undertaking. Inasmuch as the psychical handling of a patient means individual study, it would be tedious to indulge in generalities. But one thing may be mentioned. Although a conscientious adherence to details must be secured, too many sufferers have had their attention so intimately drawn to their excreta as to become monomaniacal. Let the patient understand from the outset that the task of examination must be left to others.

8. *Treatment of Acute Attacks.*—Occasionally the accumulation of large quantities of inspissated mucus leads to an attack of very severe abdominal pain for which absolute rest in bed is imperative. Moist warmth is applied to the abdomen. The diet is reduced to plain Evian water and water-gruel made with crème d'orge, arrowroot, or rice for two days. An injection of morphia and atropine is given for relief of the enterospasm. A large, warm, olive oil enema immediately followed by a pint of warm water is slowly administered. Two hours later evacuation of the mucus will be completed by the injection of two pints of water at 99° F. containing half a drachm of pure oleate of soda.

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Special Articles.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

CONFERENCE OF OHIO HEALTH COMMISSIONERS.

THE State of Ohio comprises a rural population of six millions, divided amongst 88 counties. The public health organisation of this community is very young, as may be judged from the fact that the annual conference of health commissioners held from Nov. 19th to 24th was only the fourth in its history. Ideally each county and each town of 5000 inhabitants or more should be in the special jurisdiction of a health commissioner. Actually there are 42 county commissioners and 26 city commissioners employed as full time public servants, while a large number of doctors in addition give a part of their time to public health work. The health laws of the State provide that all these men shall attend the annual conference at the public expense, and there was, therefore, a good audience gathered at Columbus to hear the distinguished speakers who had been invited to read papers. These included Surgeon-General H. S. Cumming, of the United States Public Health Service; Profs. A. W. Freeman and W. H. Frost, ot the Johns Hopkins School of Public Health; Dr. Haven Emerson, professor of public health at Columbia University; Dr. E. R. Hayhurst, professor of preventive medicine at the Ohio State University; Dr. Luisly Williams, and Dr. W. H. Park, as well as other speakers of international fame.

Coöperation of General Practitioner and Health Commissioner.

The most significant lesson of this conference, and one that any European observer could not have failed to remark, was the extent to which the whole medical profession of the State is mobilising itself behind the projective measures of preventive medicine. The president of the State Medical Association was present and pledged the unlimited support of his organisation. The Columbus Academy of Medicine entertained the commissioners at their own house with many cordial and fraternal expressions of goodwill. Moreover, it was clear that the two large campaign measures which have been planned for the coming year will stand or fall by the loyalty with which the profession as a whole supports them. This is clearly an integral part of the policy of the State Director of Health, Dr. John E. Monger, himself a practising physician, determined, so he says, to return to that calling, and one of the methods by which he appears to have succeeded in convincing the doctors of this State that social medicine is not necessarily medicine that has been socialised.

The Cure and Prevention of Diphtheria.

The provision of free antitoxin to all cases of diphtheria is a legal obligation of each health commissioner. Until recently the price of serum had been a good deal higher than just profits for the manufacturer need have dictated. The State Department of Health had arranged to purchase on a large scale at a reasonable rate and the main subject to be discussed was the method of distribution. In the larger cities, as for example in Cleveland, the serum is kept in ice-chests at every police-station. In the country it has sometimes been distributed through the pharmacists and sometimes given to the private practitioner, who must account for its use (thus providing a useful check on the reporting of suspected cases). Both these methods are open to the objection that the serum is frequently not preserved in an ice-chest. A better method seemed to be to keep the whole stock in the office of the Health Commissioner, where it may always be reached in a few hours.

The discussion on the prevention of diphtheria was ushered in by an interesting paper from Dr. W. H. Park, president of the American Public Health

Association and director of the New York City Health Department Laboratories. Dr. Park described the use of the Schick test and toxin-antitoxin immunisation in New York. There it is hoped to immunise this year about 100,000 school-children and some 20,000 children of pre-school age. The response of the public after four years of educational and prophylactic work is distinctly more cordial. The whole work has been carried on by eight doctors, eight nurses, and eight assistants, and the results are shown in the following table, which was obtained from Dr. Park.

Year.	Total cases.	Total deaths.	Deaths per 100,000 population.
1919	14,000	1239	22
1920	14,100	1045	21
1921	15,000	891	16
1922	10,000	876	15

In 1923, if the rates continue for the last six weeks as for the first 46 weeks, there will be about 8000 cases with some 550 deaths, or a rate of less than 10 per 100,000. Dr. Park suggested that the increased incidence during the first two years of the campaign might be due to improvement in reporting cases as a result of the extra attention to the subject of diphtheria. It will be seen that the death-rate has been cut in half, although not more than one-third of the children have been immunised, and no compulsion whatever has been exercised. The Ohio Department of Health has adopted as its slogan, "No child in Ohio need die of diphtheria." Actually some 1000 die yearly from this disease. With 169 health commissioners at work, strongly backed by the whole medical profession and armed with toxin-antitoxin to be supplied by the State, we should see a reduction in mortality even more rapid and more striking than that in New York.

Regular Physical Examinations.

The movement for a "nation-wide health examination campaign" has been sponsored by the National Health Council for some years now. The American Medical Association has also warmly endorsed this movement, as I have indicated in a previous letter. Dr. Haven Emerson, the chairman of the committee of the A.M.A. Council on Health and Public Instruction, introduced the subject with a paper in which he divided the public health movement into three eras: the era of police and quarantine from 1700 to 1900; that of the voluntary health organisations, beginning with the present century; and the present era of health examinations and popular health instruction, which brings the whole public into active endeavour towards the suppression of disease. He showed how all modern health movements, infant hygiene, school hygiene, anti-tuberculosis, &c., are all dependent upon frequent contact between the individual and his physician. The result may be typified by the tuberculosis work in New York clinics. Whereas formerly it was rare to see a new patient who was not in an advanced stage of the disease, last year 70 per cent. of the patients coming to 31 tuberculosis clinics in that city were not tuberculous at all. It is now the rare exception to see a case for the first time at an advanced stage. He suggested that the physician should examine apparently healthy individuals not less often than laid down below.

In the pre-natal period..	4 times.
,, first 2 years	20 ,,
From 2–5 years old	Every 6 months.
,, 6–15 ,, ,, ...	Once a year.
,, 16–25 ,, ,, ...	Once in 2 years.
,, 25–60 ,, ,, ...	Once a year.

The public needs to develop a conscience in this matter. At present many people who would be chagrined if their roof were to leak and make a spot on the dining-room ceiling are not at all ashamed if their child's heart leaks. The professional organisations cannot advertise themselves, the need for regular examination must be taught by the voluntary associations and by health officers, but the profession needs to equip itself for this kind of work, for which it has been inadequately trained, and in which it has too little experience.

After a discussion, in which several speakers representing the medical association supported the movement and emphasised the importance of thoroughness and care in making the examinations, Dr. Hayhurst announced the plans that have been made for launching this campaign in Ohio.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

GRANTS TO HOSPITALS AND CONVALESCENT HOMES.

A meeting of the President and General Council of King Edward's Hospital Fund, for the purpose of awarding grants to the hospitals and convalescent homes for the present year, was held on Dec. 18th, the Prince of Wales being in the chair.

Lord Revelstoke (hon. treasurer) in reporting the amount received for general purposes by the Fund to Dec. 3rd, said that this time last year he had expressed the hope that the income to be derived from the munificent legacies of Lord Mountstephen and Sir Thomas Sutherland would form the nucleus of a permanent increase in the distribution. The Fund had already received a large part of this increased income. The total income from all investments had reached £145,000 this year, as against £114,000 in 1922. On the other hand, ordinary legacies had decreased, although for the past 12 months they still reached the substantial figure of £47,000. The net result was that the Fund was able to distribute £235,000, or £15,000 more than the amount distributed a year ago. The ordinary income from subscriptions and donations had been well maintained, owing largely to an anonymous donation of £6,500 received in May. The estimates also included the amount which the Fund hoped to receive from its largest contributor, the League of Mercy. There was every hope that the sum of £235,000 would be provided very nearly, if not quite out of the current income of the year.

Sir William Collins, in making the annual statement on behalf of the League of Mercy, said that so far as they could tell from the subscriptions at present received, a sum of £14,000 would be handed over to the King's Fund before the end of the year. This would make a total sum of £353,000 handed over to the Fund since the foundation of the League. Adding the grants made to hospitals outside London, the total came to £407,682.

The Chairman of the Hospital Economy Committee (Mr. Leonard L. Cohen) presented the report of the Committee on

Recovery Branches of London Hospitals,

the general conclusions of which were: that, in view of the advantages to the patients, the development of recovery branches deserved encouragement, subject to the proviso that before a branch is established those responsible for its finance should realise that the apparent cheapness resulting from the low cost per bed at the branch was largely illusory; that its establishment was a form of hospital extension and must be budgeted for as such; and that no form of extension should be undertaken without particularly careful consideration both by the hospital and by the King's Fund, until the restoration of voluntary hospital finance had been completed.

Dr. H. Morley Fletcher seconded the adoption of this report, and the motion was carried unanimously

The Chairman of the Distribution Committee (Sir Cooper Perry) presented the report of the Committee on the

Distribution to Hospitals

(including recovery and convalescent branches). This stated that a new principle had been adopted this year in drawing the distinction between the distribution to hospitals and the distribution to convalescent homes. The grants to convalescent or recovery institutions attached to particular hospitals of London were now included with the grants to the parent hospitals, and the separate distribution to convalescent homes was confined to institutions which were not branches of a hospital. The new procedure had arisen out of an inquiry by the Hospital Economy Committee into the relation between hospitals, homes of recovery, and convalescent homes. Lord Cave's Committee had suggested that the provision of auxiliary hospitals on the outskirts of cities for cases no longer requiring constant medical or surgical supervision might prove an economical method of increasing hospital accommodation, and the hospitals which had already established recovery branches were anxious that the King's Fund should recognise the difference between these branches and ordinary convalescent homes. In determining the amount of the combined grant regard to the extent to which the work at the branch approximated to hospital work on the one hand, or to purely convalescent work on the other hand, had been taken into consideration. The amount placed at the disposal of the Distribution Committee for allocation amongst hospitals and their recovery and convalescent branches at the present distribution was £233,000. The amount distributed last year at the ordinary distribution was £215,000 to hospitals and £3385 in separate grants to recovery and convalescent branches. In June last the King's Fund made a final distribution of £115,000 out of the proceeds of the Hospitals of London Combined Appeal, £150,000 having already been distributed in August, 1922, and £100,000 in October, 1922. The Distribution Committee's report on the whole of this special distribution of £365,000 had been published in the annual report of the King's Fund for 1922. A sum of £5000 which had since been received from the Combined Appeal was included in the present ordinary distribution. The number of hospitals applying for grants out of the ordinary distribution was 116, as against 112 in 1922. The need of maintenance grants continued to be the first consideration, and the Distribution Committee had therefore again limited the grants in aid of schemes of capital expenditure to cases where the work was particularly urgent and was within a reasonable distance of being carried out. The total amount of such grants recommended this year was £30,100, as against £26,500 in 1922. The total grants to maintenance out of the ordinary distribution amounted to £202,900, as against £188,500 in 1922 to hospitals, and £3385 to their branches.

Several of the schemes to which the Fund had made grants in the past were still deferred owing to financial difficulties, and the Distribution Committee recommended that the following grants should be renewed: City of London Hospital for Diseases of the Heart and Lungs, £1000 to improvements; East Ham Hospital, £500 to rebuilding; French Hospital, £100 to improvements; General Lying-in Hospital, £4000 to rebuilding; Hornsey Cottage Hospital, £500 to extension; London Lock Hospital, £3500 balance of grants to reconstruction of the Harrow-road Hospital; Queen Charlotte's Lying-in Hospital, £3100 to new out-patient department and other improvements; Royal National Orthopædic Hospital, £1000 to extension of out-patient department; St. Monica's Hospital, £60 to improvements; St. Thomas's Hospital, £3750 to extension of nurses' dining-room, and £1000 to improvements.

*List of Awards.**

Lord Somerleyton (hon. secretary) presented the list of awards as follows:—

	£
Acton Hospital (of which £500 to deficit on extension, in accordance with the scheme submitted to the Fund) ..	700
All Saints' Hospital	100
Baby Clinic Hospital (Kensington)	25
Beckenham Cottage Hospital (of which £1000 to extension, in accordance with the scheme submitted to the Fund)	1,200
Belgrave Hospital for Children	1,200
Blackheath and Charlton Hospital	150
Bolingbroke Hospital (of which £1000 to erection of new ward block, in accordance with the scheme submitted to the Fund)	2,000
British Hospital for Mothers and Babies, Woolwich (of which £500 towards the building of the amalgamated hospital, in accordance with the scheme submitted to the Fund)	1,000
Central London Ophthalmic Hospital	600
Central London Throat and Ear Hospital (of which £200 to provision of X ray equipment, in accordance with the scheme submitted to the Fund)	300
Charing Cross Hospital	4,500
Chelsea Hospital for Women (including Convalescent Home at St. Leonards) (of which £1000 to new nurses' home, in accordance with the scheme submitted to the Fund)	1,850
Cheyne Hospital for Children	200
City of London Hospital for Diseases of the Heart and Lungs (Victoria Park) (including Convalescent Home at Saunderton)	3,550
City of London Maternity Hospital	1,000
Clapham Maternity Hospital	300
Dreadnought Hospital (Seamen's) (including Sanatorium at Liphook, and Convalescent Home at Cudham) ..	3,550
East End Mothers Lying-in Home	600
East Ham Hospital	100
East London Hospital for Children (including Convalescent Home at Bognor)	3,200
Elizabeth Garrett Anderson Hospital (including Recovery Branch at Barnet)	1,650
Eltham and Mottingham Cottage Hospital	25
Evelina Hospital (of which £250 to reduce debt) ..	1,250
Finchley Memorial Hospital (of which £250 to scheme)	550
Florence Nightingale Hospital for Gentlewomen (of which £100 to reduce debt)	350
French Hospital	300
General Lying-in Hospital (of which £50 to improvements)	650
German Hospital	300
Grosvenor Hospital for Women	550
Guy's Hospital (of which £1000 to provision of central power station)	11,500
Hampstead General and North-West London Hospital (of which £500 to reduce debt)	3,000
Hendon Cottage Hospital (of which £250 to extension of ward block, in accordance with scheme to be approved by the Fund)	500
Hornsey Cottage Hospital (of which £500 to extension, in accordance with the scheme submitted to the Fund)	650
Hospital for Consumption, Brompton (including Sanatorium at Frimley)	1,250
Hospital for Diseases of the Throat (of which £1000 to reconstruction, in accordance with the scheme submitted to the Fund)	1,200
Hospital for Epilepsy and Paralysis (of which £1000 to extension of out-patient department, in accordance with the scheme submitted to the Fund)	2,750
Hospital for Sick Children	5,000
Hospital for Women (Soho-square)	1,000
Hospital of St. John and St. Elizabeth	750
Infants Hospital (of which £100 to reduce debt and £200 to remodelling of basement)	800
Invalid and Crippled Children's Society Hospital (Canning Town)	400
Italian Hospital	300
Jewish Maternity Home	25
Kensington, Fulham, and Chelsea General Hospital ..	25
Kensington Dispensary and Children's Hospital ..	25
King Edward Memorial Hospital (Ealing)	600
King's College Hospital (of which £500 to improvements)	8,000
London Fever Hospital	350
London Homœopathic Hospital (including Convalescent Home at Eastbourne) (of which £250 to reduce debt)	1,800
London Hospital (including Recovery Branch at Reigate)	14,650
London Lock Hospital (to maintenance of Harrow-road Hospital)	600
London Temperance Hospital (of which £1000 to new nurses' home, in accordance with the scheme submitted to the Fund)	3,000
Maternity Charity and District Nurses' Home, Plaistow	200
Medical Mission of the Good Shepherd Babies' Home (Hoxton)	25
Metropolitan Ear, Nose and Throat Hospital	25
Metropolitan Hospital	3,500
Middlesex Hospital (including Convalescent Home at Clacton)	7,500
Middlesex Hospital Cancer Charity	900
Mildmay Memorial Hospital	400
Mildmay Mission Hospital	1,000
Miller General Hospital for South East London (including Convalescent Home at Bexhill)	3,600
Mothers' Hospital of the Salvation Army	325
Mount Vernon Hospital (Fitzroy-square and Northwood)	1,000
National Hospital for Diseases of the Heart	350
National Hospital for the Paralysed and Epileptic (including Convalescent Home at Finchley)	3,700
Nelson Hospital (South Wimbledon) (of which £500 to deficit on extension, in accordance with the scheme submitted to the Fund)	1,000
Northcourt Hospital and Home for Sick Children (Hampstead) (in consideration of the fact that curable cases are admitted)	50

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* The Distribution Committee draw attention to the fact that it must not be assumed that the reduction or absence of a grant implies dissatisfaction.

	£
North Islington Infant Welfare Wards	25
Norwood and District Cottage Hospital	450
Paddington Green Children's Hospital (including Convalescent Home at Slough)	850
Passmore Edwards Hospital for Wood Green, &c.	50
Poplar Hospital for Accidents (including Convalescent Home at Walton-on-the-Naze) (of which £500 to new nurses' home, in accordance with the scheme submitted to the Fund)	650
Prince of Wales's General Hospital (including Convalescent Home at Nazeing) (of which £2000 to reduce debt, and £1,000 to extension, in accordance with the scheme submitted to the Fund)	6,050
Queen Charlotte's Lying-in Hospital (including Convalescent Home at Kilburn (of which £250 to reduce debt)	1,550
Queen Mary's Hospital for the East End (including Convalescent Home at Theydon Bois) (of which £2000 to new out-patient department)	5,700
Queen's Hospital for Children (including Convalescent Home at Bexhill) (of which £750 to debt and £250 to additional nurses' accommodation, in accordance with scheme to be approved by the Fund)	4,750
Royal Dental Hospital of London	250
Royal Eye Hospital	750
Royal Free Hospital (of which £1,000 to new nurses' home, in accordance with the scheme submitted to the Fund)	6,000
Royal Hospital, Richmond	650
Royal London Ophthalmic Hospital	3,000
Royal National Orthopædic Hospital (including Country Branch at Stanmore) (of which £1,000 to extension of country branch, in accordance with scheme to be approved by the Fund)	4,500
Royal Northern Hospital (including Royal Chest Branch in City-road, Recovery Branch at Southgate, and Convalescent Home at Clacton) (of which £1000 to new nurses' home, in accordance with the scheme submitted to the Fund)	9,000
Royal Waterloo Hospital for Children and Women (including Convalescent Home at Whippingham)	2,575
Royal Westminster Ophthalmic Hospital	700
St. Andrew's Hospital (Dollis Hill)	150
St. Bartholomew's Hospital (of which £1000 to new operating theatres, in accordance with the scheme submitted to the Fund)	10,000
St. Columba's Hospital	350
St. George's Hospital (including Recovery and Convalescent Branch at Wimbledon) (of which £500 to extension of out-patient department)	6,900
St. John's Hospital, Lewisham	600
St. John's Hospital for Diseases of the Skin (of which £50 to furnishing of nurses' home)	350
St. Luke's Hospital for Advanced Cases (of which £500 to acquisition of new premises, and their adaptation in accordance with the scheme submitted to the Fund)	700
St. Mark's Hospital	400
St. Mary's Hospital (of which £250 to electric lifts)	6,000
St. Mary's Hospital for Women and Children, Plaistow (of which £500 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund)	2,000
St. Monica's Home Hospital	100
St. Peter's Hospital for Stone (of which £100 to reduce debt)	350
St. Saviour's Hospital for Ladies of Limited Means (Osnaburgh-street)	100
St. Thomas's Hospital (of which £1000 to reduce debt)	9,500
Samaritan Free Hospital for Women (including Convalescent Home at Amersham)	1,325
Santa Claus Home	50
South-Eastern Hospital for Children (Sydenham) (of which £750 to deficit on new out-patient department, in accordance with the scheme submitted to the Fund)	1,500
South London Hospital for Women	1,250
Stoke Newington Home Hospital for Women (of which £100 to new operating theatre)	150
Streatham Babies' Hospital	25
University College Hospital	7,000
Victoria Hospital for Children (including Convalescent Home at Broadstairs) (of which £750 to deficit on new physio-therapeutic department and nurses' accommodation, in accordance with the scheme submitted to the Fund)	2,950
Walthamstow, Wanstead, and Leyton Children's and General Hospital	600
West End Hospital for Nervous Diseases (of which £500 to improvements, in accordance with the scheme submitted to the Fund)	2,000
Western Ophthalmic Hospital	250
West London Hospital (of which £500 to reduce debt)	5,000
Westminster Hospital (of which £5,000 to improvement of existing hospital, in accordance with the scheme submitted to the Fund)	7,500
Willesden General Hospital (of which £1000 to extension as general hospital, in accordance with the scheme submitted to the Fund)	2,500
Wimbledon Hospital (of which £500 to deficit on new nurses' home, in accordance with the scheme submitted to the Fund)	850
Winifred House Invalid Children's Convalescent Hospital Home	25
Woolwich and Plumstead Cottage Hospital (see special grant below)	25
Total	£231,500

Special Grant.—Woolwich and District War Memorial Hospital Building Fund (to provision of general hospital, in accordance with the scheme submitted to the King's Fund), £1,500.

Sir John Bland-Sutton seconded the motion, which was put and carried unanimously.

The chairman of the Distribution Committee, Sir Cooper Perry, than presented the report of the committee on the

Distribution to Convalescent Homes

not attached to particular hospitals in London, which stated that the sum available for distribution was £2000; the amount distributed to such convalescent homes in 1922 was £1615; grants to the recovery and convalescent branches of hospitals (which amounted to £3385 in 1922), it was pointed out, are now combined with the grants to the parent hospitals. The number of applications eligible for consideration amounted to 40, as against 41 last year.

List of Awards.

Major Harold Wernher (hon. secretary) presented the list of awards to convalescent homes not attached to particular hospitals as follows:—

	£
All Saints' Convalescent Home, Eastbourne	200
All Saints' Convalescent Home, St. Leonards	50
Baldwin Brown Convalescent Home, Herne Bay	25
Beau Site Convalescent Home, Hastings	25
Brentwood Convalescent Home for London Children, Brentwood	25
Brooklands Home (Invalid Children's Aid Association), Worthing	75
Bushey and Bushey Heath Children's Convalescent Home, Bushey	25
Children's Convalescent Home, Beaconsfield	25
Children's Cottage Hospital (in consideration of convalescent cases), Cold Ash, Newbury	25
Children's Home Hospital, Barnet	25
Clevedon Sanatorium (Invalid Children's Aid Association), Broadstairs	50
Convalescent Home for Poor Children, St. Leonards	100
Convalescent Police Seaside Home, Hove	100
Edgar Lee Home (Invalid Children's Aid Association), Willesden	50
Florence Emma Home (Invalid Children's Aid Association), Dover	25
Friendly Societies' Convalescent Homes, Dover and Herne Bay	25
Hamilton House (Invalid Children's Aid Association), Seaford	50
Highgate Convalescent Home for Children, Highgate	50
Home for Invalid Children, Brighton	25
London and Ascot Priory Convalescent Home, Bracknell	100
London and Brighton Female Convalescent Home, Brighton	25
Mental After-Care Association Homes, Fairlight	150
Metropolitan Convalescent Institution, Bexhill, Broadstairs (Children) and Walton	100
National Sunday School Union, Bournemouth	25
St. Andrew's Convalescent Home, Folkestone	75
St. Andrew's Convalescent Hospital, Clewer	25
St. John's Home, Kemp Town (Brighton)	50
St. Luke's Home (Children) (in consideration of convalescent cases), Woodley (Reading)	25
St. Mary's Convalescent Home, Birchington	25
St. Mary's Home for Children (in consideration of convalescent cases), Broadstairs	50
St. Michael's Convalescent Home, Westgate	50
St. Nicholas' Home (Church of England Waifs and Strays), Pyrford	50
Seaside Convalescent Hospital, Seaford	100
Suffolk Convalescent Home, Felixstowe	50
Surgical Home for Boys (in consideration of convalescent cases), Banstead	25
Thomas Turner Convalescent Home for Children (Church of England Waifs and Strays), Broadstairs	50
Tilford Convalescent Home for Children, Farnham	25
Victoria Home for Invalid Children (in consideration of convalescent cases), Margate	25
Total	£2000

Prof. Winifred Cullis seconded the motion which was put and carried unanimously.

The Chairman of the Ambulance Cases Disposal Committee (Sir William Collins), in making a statement on the present position of the inquiry, said that the committee had now completed the oral evidence; the draft report was almost ready for consideration. He hoped the report would be presented to His Royal Highness before the new year was far advanced.

The Prince of Wales then read the following message from the King: "I am highly gratified that the Fund is this year enabled to increase its distribution from £220,000 to £235,000; also that the difficulties facing the voluntary hospital system are being steadily overcome by the methods adopted and advocated by the Fund. I sincerely trust that continued success will attend the work of the council and committees."

Remarks by the Prince of Wales.

Continuing, the Prince of Wales said that the King's Fund was taking another stride forward. The distribution was being increased by £15,000. For the last two years it had been £220,000; this year it was £235,000. Nearly the whole of this was provided from income received during the year, in spite of the fact that legacies were considerably less than in 1922. The increase in income, which had more than balanced the fall in legacies, was chiefly due to the dividends from the bequests of Lord Mountstephen and Sir Thomas Sutherland. But the Fund had also been greatly helped by an anonymous donation of £6500. The novel feature in the report of the Distribution Committee was the new method of dealing with the recovery and convalescent branches of hospitals. The question of recovery branches came up for decision this year because of the inquiry by the Hospital Economy Committee, and the report was an example of the way in which the King's Fund, as Voluntary Hospitals Committee for London, was steadily working through that admirable text-book on Voluntary Hospital Finance, the report of Lord Cave's Committee.

On matters that did not directly affect the Distribution Committee, the other committees would report to the council at the annual meeting in the spring. But there has been an interesting development of the work of the Revenue Committee. Two subcommittees have been appointed. One, under the chairmanship of Lord Burnham, was to assist, partly by general propaganda in aid of the work of the King's Fund and the hospitals; partly by enlisting the help of members of the professions of science, art, literature, law, &c.; and partly, by continuing from time to time some of the activities of the educational auxiliary which did such good work for the Combined Appeal. The other, under Major Wernher, was to assist both the King's Fund and the hospitals to increase their revenue in any other ways not already covered by some existing agency. Besides a nucleus drawn from the Revenue Committee, Lord Burnham's Committee, so far, contained the following members, most of whom were not otherwise officially connected with the King's Fund, but who have shown, through the Combined Appeal or in other ways, their desire to give personal assistance in connexion with their respective professions: Art, Prof. W. Rothenstein; drama, Mr. Dennis Eadie; education, Sir William Beveridge and Dr. Ernest Barker (University of London); Mr. George Smith and Miss M. D. Brock (secondary schools); Mr. J. W. Samuel and Miss C. M. A. Coombs (elementary schools); law, Sir Reginald Acland, K.C.; literature, Mr. W. Pett Ridge and Mr. C. David Stelling; music, Mr. A. J. Hadrill; science, Prof. W. T. Gordon.

On the side of definite propaganda a leaflet, with a foreword by Mr. Pett Ridge, answering questions about the present financial position of the hospitals of London, had already been issued. One of the general objects of propaganda was to bring the hospitals before people, not only or even chiefly as institutions appealing for subscriptions, but as a very important factor in our social organisation, doing essential work both for the sick poor and for the health of the whole community, and to inculcate in the mind of the public generally a greater sense of responsibility for the regular and systematic support of the hospitals on these grounds. The object was to assist the hospitals and the other central agencies, not to compete with them. The central agencies now included the new Hospital Saving Association for organised contributions from employers and employees. Another new piece of work, undertaken at the request of the Voluntary Hospitals Commission, was an inquiry by a Special Committee, with Sir William Collins as chairman, into the question of hospital accommodation for accident cases.

The Prince of Wales, having briefly acknowledged a vote of thanks, the proceedings terminated.

ANNUAL MEETING OF PRESIDENTS OF THE LEAGUE OF MERCY.

On Dec. 19th the Prince of Wales, as Grand President of the League of Mercy, presided over the annual meeting of presidents of the League at St. James's Palace, when he read the following message from the King: "The Queen and I desire to convey to the presidents, vice-presidents, members, and officers of the League of Mercy our warm appreciation of their sustained interest in this great and successful movement. More than a quarter of a century ago, King Edward, himself a firm believer in the voluntary system, instituted the Fund that bears his name, and, two years later, the League of Mercy; and, though during this period many changes have taken place in the hospital world, I feel that this system still commands the confidence and sympathy of all classes."

Continuing, the Prince of Wales said that looking at the statistics of 113 London hospitals it would appear that in the year 1922 the only source of ordinary revenue which showed a marked increase was that of payments made by patients, amounting to £490,000, or £70,000 more than in 1921. Such payments, together with various rival contributory or provident schemes offering prospective advantages, were not without influence on such a central collecting agency dependent on disinterested personal service as the League of Mercy. It was, however, gratifying to learn, on the authority of the Voluntary Hospitals Commission, in their report upon contributory schemes, that most hospitals rely upon the charitable instinct of the public, and maintain the principle that the necessitous poor and the medically urgent must have the first call upon the resources of the hospital. Other rival schemes, such as ballots and similar competitions, contrived to raise funds for charities, had become popular, and had elicited a warning from the London County Council that, in the case of some of them, a considerable percentage of their contributions, which are ostensibly given for charity, finds its way into the pocket of the professional organiser. No such charge could be levelled against the League of Mercy, since all contributions received by its members and paid in through the vice-presidents and presidents went, without any deductions whatsoever, to the maintenance of the voluntary hospitals. He had received the gratifying intimation that the British Charities Association had decided to entrust to the League of Mercy for distribution by it the sum of £1000 in advance derived from their hospitals competition.

Sir Frederick Green, the hon. treasurer, in his report said that the total of the collections this year was in the neighbourhood of £20,500, about £800 less than in the previous year. They hoped to be able to give £14,000 or £15,000 to King Edward's Fund for division among hospitals, and about £5000 to extra-metropolitan hospitals.

TUBERCULOSIS.

The Tuberculosis Campaign in Lancashire.

THE annual reports of the central tuberculosis officer for Lancashire have in the past been animated by a spirit of organised hustle, and the last report, which is for the year 1922, is no exception to this rule. This is the more creditable as there is at present a tendency to lapse from that spirit of constructive reform which was such a driving force at the end of the late war. Rationing of expenditure has been imposed in Lancashire as elsewhere, but owing to economies and fall in prices, the tuberculosis service has been extended and improved in several respects. The institutional accommodation has been increased from 678 beds at the end of 1922 to 772 in October, 1923. A recent survey of the incidence of tuberculosis in Lancashire has brought out striking differences in the distribution and mortality of pulmonary tuberculosis in various parts of the county, and this investigation, like a similar investigation recently carried out in Denmark, has emphasised the gregarious character of this disease. In 1922 there were 1626 "contacts" examined in their homes or at dispensaries, and in 79 cases definite tuberculosis was discovered. This ratio of 4·86 per cent. is much higher than any random sampling of the ordinary population would produce, and again we see the gregarious element of the disease demonstrated. An eloquent testimony to the tact and efficiency of the Lancashire tuberculosis officers is the improvement in early notification. In 1918, in as great a proportion as 18 per cent. of the deaths from tuberculosis, the disease had not been notified before death. In 1922 this was the case in only 8 per cent., the period 1918–22 showing a steady improvement in this respect. Omissions and delays in notification may, to a certain extent, vary in frequency in different localities with the efficiency of the tuberculosis staff, and the fact that in Lancashire only 8 per cent. of the tuberculosis deaths occurred before notification is a convincing proof of the smooth coöperation of the tuberculosis staff with the general practitioners in the county. Out of 4059 new cases ("contacts" excluded) examined in 1922 by the tuberculosis officers, 3116, or 76·7 per cent., had been referred to the dispensaries by general practitioners and other medical officers. In 1921 this ratio was only 68·9 per cent. A study of the results of sanatorium treatment and a comparison of it with domiciliary treatment shows very clearly that the prognosis is far better for the former. Thus, of 981 sanatorium cases and 728 non-sanatorium cases in the early and intermediate stages and sputum-negative, commencing treatment in the period 1914–18, it was found that only 16 per cent. of the sanatorium patients and 42·6 per cent. of the non-sanatorium patients had died by the end of 1922.

The Ultimate Results of Nephrectomy for Renal Tuberculosis.

In the *Schweizerische medizinische Wochenschrift* for Nov. 29th Prof. F. Suter, of Basel, has published the results of inquiries made in the winter of 1920–21 as to the fate of 204 patients who had undergone nephrectomy for renal tuberculosis between 1896 and 1920. Only seven of these patients could not be traced. In 20 per cent. tubercle bacilli could not be found in the urine, and in at least 70 per cent. of the male patients the genital system was also tuberculous. Only in a few cases was nephrectomy in bilateral disease attempted, but there were several in which the non-tuberculous kidney was at last temporarily damaged, as shown by the presence of albumin in the urine from this kidney. Of the 197 patients who could be traced, 138 were still alive, and 59 were dead. The mortality was considerably higher for men than for women, being 35·6 per cent. for the former and only 22·3 for the latter. This difference was evidently chiefly due to the presence of disease in the genital system of the men; in 81 per cent. of the male patients who died, there were signs of combined urino-genital tuberculosis at the time of operation. The operation mortality was only 2·5 per cent. (five deaths within the first six weeks of the operation). Of the 138 survivors, 82 showed complete recovery, and 35 showed recovery with some permanent defect such as a contracted bladder. The remaining 21 patients had not recovered completely. One of the most striking observations emerging from this investigation is that many patients are very long in dying after nephrectomy for unilateral tuberculosis; among the patients who died from disease of the remaining kidney, the average duration of life after the operation was five and a half years. In the absence of post-mortem examinations, it was not always possible to say whether these deaths were due to persistence of the bladder tuberculosis and nephritis in the remaining kidney or to tuberculosis in this kidney. Prof. Suter concludes that permanent recovery can be effected by nephrectomy in 60 per cent. of all cases of unilateral renal tuberculosis.

The Prognostic Significance of Cavities in Pulmonary Tuberculosis.

It has recently been stated in Germany that cavitation almost invariably means the patient's death within a short time, and that it is most rare to find cavities in persons who have recovered from pulmonary tuberculosis and who have died from some other cause. To throw further light on this matter, Dr. K. Lydtin,[1] of Prof. Romberg's clinic in Munich, has investigated the ultimate fate of 2500 consumptives treated in hospital in the period 1912–20. There were 716 who died in hospital, and among them there were about 650 who showed cavities at the necropsy. There were also 121 patients who showed definite clinical or X ray evidence of cavities, and who yet left hospital alive. Only 79 of these 121 patients could be subsequently traced, and it was found that 66 had died, and only 13 were still alive. These figures give considerable support to the gloomy views expressed in 1921 at the German Tuberculosis Congress in Elster by Dr. Graeff, who suggested that there was little use in sending patients with cavities to sanatoriums unless some preliminary operative procedure, such as a thoracoplasty, had been undertaken.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the principal health statistics of six counties for 1922:—

County.	Estimated population (R.-G.).	Birth-rate.	Death-rates per 1000 of the population.				Death-rates per 1000 births.		
			All causes.	Tuberculosis.	Cancer.	Respiratory with influenza.	Infant mortality		Maternal mort. in childbirth.
							Legit.	Illegit.	
Bedfordshire ..	207,916	17·9	12·2	1·0	1·2	2·5	63	111	3·2
Staffordshire ..	710,378	23·0	12·3	0·9	1·1	3·1	84*		3·8
East Sussex ..	253,246	15·6	11·8	0·8	1·5	1·9	52*		4·6
Norfolk	316,976	19·7	12·9	0·9	1·6	—	63	111	—
Lincolnshire (Parts of Lindsey)	254,567	21·1	12·9	1·2	1·2	2·4	71	138	4·1
Hampshire ..	394,665	19·4	11·3	0·8	1·3	1·9	52*		3·6

* Undivided infant mortality.

A line denotes that the information is not given in the report.

Bedfordshire.

Prof. Henry Kenwood believes that for a still further substantial reduction in the infant mortality-rate we must rely on fuller measures of ante-natal work, and he reports that the county scheme, under which the midwives are subsidised to act as ante-natal health visitors, has worked smoothly during 1922. There are still too few maternity hospitals and homes in the county, and the need for a dental service for expectant and nursing mothers is great. The shortage in water-supplies dating from 1921 is still felt in some villages. Dr. Kenwood lays stress on the advantages of earth-closets over the privies and pail-closets usually provided, and shows how easily the latter can be adapted for the use of dry earth and thus rendered more sanitary. The report contains the usual complaint of the dearth of houses and the consequent impossibility of renovating unfit houses. Dr. Ronald T. Herdman submits a separate report as school medical officer. He points out that the raising of the school-leaving age to 14 has created a need for better seating accommodation for the elder scholars, especially the girls, many of whom are found to be stooping and round-shouldered. It is deplored that parents often do not see the need for the provision of spectacles, unless the sight is very defective. This especially applies to the boys, who are expected to take up outdoor work and to do little reading after they leave school. Ear disease is not common among the Bedfordshire school-children, although an examination of 138 leavers showed that 8 had actual discharge. Of the remainder, 6 had a hole in the drum and 23 showed scars, but in most of these there was either only a slight or no defect of hearing. The school entrants have as many bad teeth as formerly, but at the age of 8 there is a marked improvement since the work of the school dentist began. The school dentist, Mr. F. S. Cooper, says the parents are gradually learning about the aims of conservative dentistry. Owing to an insufficient staff, the dental work is mainly confined to children up to the age of 10 years.

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[1] Zeitschrift für Tuberkulose, 1923, xxxix., 1.

Staffordshire.

Dr. W. D. Carruthers reports that there are now 224 trained and only 66 "bona-fide" midwives practising in the county. Since the Midwives Act came into force 110 midwives have been removed from the roll by the action of the supervising authority. Midwives attended about 80 per cent. of the total births in the county, and sent for medical help on 1992 occasions during 1922, compared with an average of 547 for the five years 1905–09. Of 43 severe cases of ophthalmia neonatorum 3 died from other causes, in one case the sight of the left eye was lost and that of the right eye damaged, and in another case the child lost the sight of the right eye, while the remaining 38 recovered without damage. The county council continue their policy of providing midwifery training for suitable candidates on the understanding that when trained each midwife will practise in a definite area for three years. The income will be subsidised up to £120 per annum if she agrees not to select her cases. In the rural districts the County Nursing Association supply the midwifery service. During the year this Association has sent 13 women to be trained as nurse-midwives. Up to the present no maternity homes have been provided, but use is made of the "Mrs. Legge" Memorial Home at Wolverhampton. The county council have fixed a scale for the recovery of fees for medical attendance under the Midwives Act, 1918. The repayment of the whole fee is not claimed unless the weekly income of the family, after deducting 3*s.* 6*d.* for each child under 14 years of age, exceeds 45*s.* The county health visiting scheme provides for 18 combined school clinics and infant welfare centres in the populous areas around Wolverhampton, Walsall, and Stoke. The attendances of expectant mothers were 504, as compared with 378 in the previous year. Dr. Carruthers reports considerable activity in the improvement of sewage disposal schemes and the prevention of the pollution of the rivers.

East Sussex.

Dr. Alex. G. R. Foulerton reports that 1288 houses were completed during the year, 569 under housing schemes and 719 by private enterprise. In view, however, of the serious overcrowding and the cessation of building during 1914 to 1919, existing conditions are not satisfactory, and but little relief has been given by the additional houses provided. The total number of infants born in the county area (exclusive of Hove) during 1922 was 3464. Of these, 2582 confinements were attended by midwives, in 80 per cent. of cases alone and in 20 per cent. acting as maternity nurses. The Maternity and Child Welfare Committee have provided subsidised lying-in accommodation at the Brighton Hospital for Women for 42 cases, and the Crowborough Cottage Hospital for one case. The county council's health visitors have coöperated closely with the East Sussex Nursing Federation. Dr. Foulerton lays emphasis on the great importance of a proper dietary including fresh vegetables and the right kind of fat in preventing tuberculosis, and instances the experience of this country and other countries both during and since the war in support of this view. The continuous fall in the death-rate from pulmonary tuberculosis in East Sussex since the Armistice was interrupted by a slight rise in 1922.

Norfolk.

Dr. J. T. C. Nash reports a considerable advance in the number of new houses erected in 1922. Only 7 new houses, however, were erected in King's Lynn, and unfit houses are still occupied in that borough. Many of the district medical officers of health comment on the fact that the houses provided under municipal schemes are beyond the means of agricultural labourers and others whose earnings do not exceed 30*s.* a week. The lack of new houses of low rental makes it difficult for the sanitary authority to deal effectively with cottages which have become structurally dangerous or are in need of extensive repairs. In the county of Norfolk, in contrast to most other districts, the majority of the births are still attended by doctors. Out of 6248 births only 1353 were attended by midwives alone. Out of these 1353 confinements the midwives sent for medical aid in 238 cases. The Norfolk Nursing Federation exists for the purpose of training, supplying, and supervising nurses, and receives grants from the county council. There are now 83 affiliated nursing associations in the county. The nurses of these associations are used by the county council as health visitors, except in those districts where their three whole-time health visitors work. Dr. Nash draws attention to the need of the encouragement of breast-feeding. While 87 per cent. of the infants under 1 month were breast-fed, 22 per cent. of the infants between 1 and 3 months old and 33 per cent. of those between 3 and 6 months were not breast-fed. There was no shortage of water in Norfolk during 1922.

Lincolnshire (Parts of Lindsey).

Dr. R. Ashleigh Glegg says that the health service of the county is incomplete in certain directions. A maternity home is needed at Scunthorpe. The building formerly used as council offices by the Frodingham Council would be suitable for the purpose. Home-helps are needed during the confinement period. The policy of providing midwives in country districts by grants-in-aid to district nursing associations should be extended. As regards tuberculosis, earlier notification is needed; the provision of hospital accommodation for acute and advanced cases is necessary; better arrangements should be made for after-care and employment after the sanatorium treatment, and the extension of district nursing for advanced cases treated at home is another need. As regards venereal diseases, Dr. Glegg advocates an additional clinic at Gainsborough, some form of notification and legislation to compel treatment until cure is effected. Dr. Glegg draws special attention to the Cleethorpes educational and publicity campaign initiated by the enthusiasm of Mr. Foster, the cleansing superintendent. This campaign has reduced the amount of refuse to be collected "through householders developing a health conscience and burning decomposable refuse."

Dr. Annie T. Brunyate, the maternity and child welfare medical officer, reports that the health-visiting scheme improves as the increasing number of district nurses who act as health visitors extend its operations to outlying areas. There are still large tracts of country, especially in the Wold area, where there are no midwives and no provision is made for the skilled nursing of the mother at her confinement. The amount of dried milk distributed below cost price was less in 1922 than in 1921, partly owing to the revival of industry in Scunthorpe and the ironstone area, but chiefly owing to Government action in cutting off the supply for children over 12 months of age. The effect of this latter step was found to be harmful, but real injury to the health of a considerable number of young children was averted by the (voluntary) Child Welfare Association finding the money to continue the supply on the old lines. Dr. Brunyate thinks that owing to the reduction of the agricultural wage it will be necessary to provide more milk in country areas if the standard of health of children of large families is to be maintained. The dental treatment provided under the county council scheme is greatly valued by the mothers; free dentures are very rarely provided under this scheme, and it is hoped that in the future the care committees will be able to give more assistance for necessitous cases.

Hampshire.

Dr. Robert A. Lyster is not pessimistic as regards the effect of expenditure on tuberculosis schemes. He points out that a comparison between the triennium 1906–08 with the triennium 1920–22 shows a fall in the general death-rate of 4 per cent. and a fall in the death-rate from pulmonary tuberculosis of 25 per cent. The lack of early notification constitutes the chief obstacle to progress. He expresses regret as to the delay in the provision of a county sanatorium. The work in connexion with maternity and child welfare centres flourishes; the number of centres is now 56. There are only two medical officers. This work costs the county council but little, £300 being voted annually towards the finances of the centres, in addition to trifling amounts towards rent and the necessary travelling expenses of the medical officers and nurses who attend. The inspection of midwives is carried out chiefly by the superintendent of the Hampshire County Nursing Association (to which the county council makes a grant for the purpose). As the result of inspections, 17 midwives were reported during 1922 to be unsatisfactory in some respect and received the necessary warning. The provision of midwives for every part of the county has received much consideration from the county health committee, and as the result the county council has been recommended to make an additional grant of £600 a year to the County Nursing Association on the understanding that the Association will provide midwives in every part of the county not already dealt with. Dr. Lyster comments forcibly on the deception of the public by the trade use of such terms as "egg substitutes" or "egg powders" for preparations which consist of baking powder mixed with colouring matter and starch and in no way resemble eggs in food value.

SCHOOL MEDICAL SERVICE.

Cheshire.

OVER 23,000 individual children were examined during the year, and including those examined by the two school oculists and the school dentist, 11,579 children were referred for treatment. Of these, 64 per cent. completed treatment. During the year the rate-aided operative treatment of enlarged tonsils and adenoids was suspended as part of the economy campaign. Dr. Meredith Young points out how no one who knows the position of the working classes to-day can doubt that there are very many cases where it is quite impossible for the parents to pay even a shilling or two towards an operation of this kind, and he expresses the hope that this form of treatment may be resumed quite soon. Dental disease was recorded in 6 per cent. of those inspected by the assistant medical officer. The school dentist referred 80·3 per cent. of the 6603 whom he inspected for treatment. The large discrepancy between these findings is explained by the fact that the assistant medical officers refer for treatment only the cases where three or more teeth are carious or where sepsis is present; also the dentist's examination is a more searching examination by means of probe and mirror, which goes to show how important is the dentist's inspection. One dentist for the whole of Cheshire seems now inadequate.

One of the assistant medical officers, Dr. W. J. McIvor, reports that he found round shoulders often masking lateral deviation or scoliosis in as many as 1·6 per cent. of the children, "which figure, although far short of that found in secondary schools, suggests that the seeds of deformity are laid early. . . . In some schools the older children are forced to occupy seats made for far younger children, and consequently sit in a regrettably crouched attitude, there being a scarcity of seats of suitable type, while at the same time in other schools in the same area, where the attendance has decreased, there is a surplus." Dr. McIvor suggests that a transfer of seats from one school to another might be made. The prevention of developmental defects, such as spinal curvature, flat-foot, and myopia, is an important branch of school hygiene.

County of Stirling.

During the period from August 1st, 1922, to July 31st, 1923, the total number of children medically examined, including the 16-year-old group, was 10,202, which number comprises 1925 special examinations. Roughly, one-third of the school population was examined. There is one whole-time and one part-time dentist employed for the whole county. The part-time dentist is employed only in the borough of Stirling. Here he found 816 children requiring attention, of whom 128 refused treatment. To get the remainder treated necessitated 1118 visits of the school nurse. In the county it was found that 90 per cent. of the children inspected required treatment, and Dr. Thomas Adam emphasises the necessity for extending treatment to children over 8½ years of age. The total number inspected was 7291, of whom 1249 received treatment, considerably more than double the number treated last year. The increase is attributed to the fact that the education authority have reduced the fee for treatment to 1*s.* from 3*s.*

Dr. Margaret Rutherford, one of the assistant medical officers, writing on employment of children out of school hours in one of the more populous areas of the county, reports: "In spite of the fact that no child apparently suffers from employment, it is to be deprecated that so many of these children are employed for more than 18 hours a week—e.g., one boy who is employed by a dairyman and by a butcher works 40 hours a week, and another boy employed as a cigarette carrier at the railway-station, works 37 hours a week." Twenty-eight of the 95 children examined in this connexion were under the age of 12. Four of them were employed as lather-boys in barbers' shops. The number of children suffering from skin disease was considerably higher than in the previous year. Impetigo was the prevalent disease, and Dr. Adam reports that he recommended the abolition of the school lavatory towels in several instances, "as there is no doubt that in a great many cases infection is conveyed by the use of these towels." Impetigo is, after all, a disease spread by dirty conditions, and though the communal towel is undoubtedly a vehicle of infection, the towel itself is surely a necessity for practical cleanliness. It would in the long run probably have been cheaper to increase the number of towels, but it requires great determination and diplomacy to educate public opinion to appreciate this.

Aberdeen.

The report of the school medical officer, Dr. George Rose, last year dealt in detail with the very insanitary condition of certain of the schools. It is interesting to read that there has been a "straightening up" in general hygiene in the Aberdeen schools, although much has still to be done. Dr. Rose again returns to the need for spray baths. "The baths have not materialised, but there has been a troubling of the waters," and he exhorts the town council, seeing that the expense of swimming ponds is so great, to concentrate on baths where school-children might have a bath once a week during school hours, and adults have the like privilege in the evening. "Many of our townsmen follow occupations which are grimy and dirty, and it is but fair that those who do our unpleasant but necessary work should be afforded the possibility of making themselves clean at a small cost. . . . Accustom a child to a clean body and the habit will continue through life." We hope that Dr. Rose's arguments will prevail.

A comparison of war and pre-war heights and weights showed that the physique of the older school-children had not suffered from the food rationing, nor by the replacement of pre-war articles of diet by substitutes. The question as to whether the scarcity of milk during the war had injured the babies born at that time, Dr. Rose goes on to say, was the only question that awaited an answer. "That question can now be answered in the negative, for the heights and weights of the past school year show no practical difference from those of pre-war times. Our children have passed through the war scathless. They have no arrears of malnutrition to overtake or to be a mortgage on their health and energy in the future, as is the case among the children of Central Europe." There are only two blind children of school ages belonging to Aberdeen, and these are being educated at Craigmillar in Edinburgh. A class for stammerers has been started. Indeed, Aberdeen appears to have a true conception of the meaning of school hygiene, and in practical application of the term is going ahead steadily. Dr. Rose's reports are always good reading, and he is generally at pains to explain to the authority his reasons for any new step he contemplates. His exposition of the methods for ascertaining the degree of mental defect by intelligence tests is clear and comprehensive.

With reference to the proposals of certain eugenists for the prevention of mental deficiency, arguing that the benefit of the individual should have first consideration, he writes: "There is enough to be done in the carrying into effect of the provisions of the Mental Deficiency and Lunacy Act that provides for the protection of the feeble-minded female and for the restraint, instead of punishment, of the feeble-minded criminal, for these provisions have been comparatively ignored. Let others dream of Utopia. Our time and energy would be better spent in keeping our own doorstep clean."

MENTAL HOSPITALS SERVICE.

IN the annual report of the *Devon Mental Hospital* for 1922 it is recorded that the laboratory has been reopened, and that an operating theatre is under consideration. It is also pointed out that the hospital needs a dental room, verandahs, continuous baths, and ward letter-boxes. The diet has been improved, but is still open to criticism in view of the prevalence of tuberculosis, both the rate of incidence and the death-rate from this disease being considerably higher than the average for British mental hospitals. It is mentioned that the nurses are encouraged to make notes on their cases, these notes being incorporated in the clinical records; the practice may be found of value both to the nurses themselves and to the medical officers.

The *Bucks County Mental Hospital* was overcrowded during the early part of last year, but the return of 142 out-county patients to Oxford has left it in comparatively easy circumstances. Nevertheless, the hospital appears to be understaffed; there are only two medical officers to 609 patients, and the Commissioner observes that the ratio of nurses to patients is unusually low. The maintenance-rate has been reduced to 17*s.* 6*d.* per week.

It was feared at one time that the accommodation at the *Inverness District Asylum* would prove inadequate for the needs of the district. It has, however, remained sufficient, owing, it is stated, to the decreasing population of the Highlands, and further, to a policy of boarding-out suitable cases under single care. Many of the able-bodied patients have been employed for some years on building a reservoir, which is now nearing completion.

The report of the Inspector-General of the Insane, *Victoria* (*Australia*), for 1921, has for some reason not seen the light until 1923. It is a vigorously worded document, demanding numerous reforms of a nature with which we are familiar in England. The chief difficulty is represented by old and unsuitable buildings; one of these is likely to be given up altogether. Although in some respects Victoria appears to be worse off than England in accommodation for the insane, one feature of their organisation is an admirable one which is likely to be followed universally in the course of time, and that is the provision of large and totally independent "reception houses," where recent cases only are received, including voluntary boarders. For our own information it is worth noting that a high proportion of totally irrecoverable cases are sent to these places, including general paralytics, senile dements, and epileptic congenital defectives—patients who should be sent direct to an asylum. The sole function of the reception house is the study and treatment of recent and doubtful cases. Even among these, further subdivision is desirable—separate wards, for instance, are needed for noisy patients. The meaning of this is that there are no limits to the adequate and individualistic treatment of mental disorder; "classification" means a great deal more than the asylum architect of the last century ever dreamt of, and perhaps more than is contemplated in some of the rebuilding schemes of the present day.

The report of the Inspector of Hospitals for the Insane, *Queensland*, presents little more than a brief recapitulation of the main figures in the accompanying statistical tables, and it is therefore difficult to gauge from it the outlook of those responsible for lunacy administration in that State. No suggestion is made that facilities for voluntary treatment are desirable. Three "reception houses" exist, where patients are classified and receive preliminary treatment, but one of these has been closed, the reason for this step not being divulged. A commendable arrangement in regard to the nursing staff has been made, certain nurses who have qualified after five years' training being sent for two years to a general hospital, where they may obtain the State general hospital nursing certificate, thus qualifying for the higher posts in the mental nursing service.

The Services.

ROYAL ARMY MEDICAL CORPS.

Temp. Capt. L. C. Martin relinquishes his commn. and retains the rank of Capt.

TERRITORIAL ARMY.

Capt. A. R. Moodie to be Maj. (Prov.).

Capt. E. A. P. Brock (R.A.M.C.), to be Divisional Adjutant 46th (N. Midland) Div., vice Maj. J. R. Yourell, R.A.M.C., who vacates that appt.

ROYAL AIR FORCE.

W. Parsons is granted a short service commn. as a Flight Lt.

FIFTH ITALIAN RADIOLOGICAL CONGRESS.—The Fifth Congress of Medical Radiology, which was recently held in the rooms of the Palermo University, under the Presidency of Prof. G. Scaduto, was remarkable for the great number of medical and technical radiologists taking part. The transactions opened with a paper by Prof. Gortan (Trieste) on Pneumoradiography, and especially on Radiography of Cerebral Ventriculi, illustrated by radiograms showing the technical and clinical details. Prof. Boidi-Trotti (Turin) followed on the X Ray Diagnosis of the Urinary Apparatus, supporting his argument with notes of a large number of cases, and a discussion followed. More than 120 communications were presented to the congress. Profs. Milani, Palmieri, Porro, and Gregori dealt with X ray diagnosis of the alimentary system, and Profs. Balli, Uffreduzzi, Perussia, and Siciliano with exploration of the urinary apparatus. The therapeutical branch of the subject was dealt with by Drs. Attili, Milani, Rossi, Mendoleri, Heuser, Prusciano, Ponzio, and Spinelli. During the congress an exhibition of radiological apparatus was held. At the general meeting of the members the following officers were elected or confirmed in their positions: Chairman, Prof. Bertoletti (Turin); as assistant chairman, Prof. Balli (Modena); as secretary and treasurer, Prof. Ponzio (Turin); and as editor of the *Review*, Prof. Perussia (Milan). The sixth congress will be held in April, 1925, in Trieste, under the presidency of Prof. Massimiliano Gortan, chairman.

Correspondence.

"Audi alteram partem."

FOOT-AND-MOUTH DISEASE.

To the Editor of The Lancet.

Sir,—The Minister of Health, in a recent after-dinner speech, invited coöperation of medical and veterinary science in respect to the present grave epizootic of foot-and-mouth disease. The morbific agent being as yet not isolated, empirical experience may not be without utility. Mine I now offer has, at least, the merit of being practical; for when under orders by telegram I was "smashed" by a Government scared (in view of medical theories of the period) by my successful propagation of variola vaccine in 1891, I was left without menial servants and morally but not officially (no successor having been appointed) in charge of over 100 calves—the property of the censorious Government. Amongst these foot-and-mouth disease appeared. My medical staff, diminished from day to day by necessary transfer from my condemned establishment, gallantly joined me in cleansing and feeding the animals. This, confirmed by further experience acquired in after years in conditions less Gilbertian under a more enlightened Government, showed me that, with care as to feeding with soft food, constitutional symptoms are rarely severe and recovery results; that conducted with care as to supposed infective matter isolation is efficient, and aerial conduction is improbable; that whilst, in absence of knowledge, it is necessary to disinfect (or better, destroy) dung and urine of the infected, the presumable chief media of spread are the discharges of the mouth and hoofs; that the morbific agent is favoured if the site of deposit be moist and, at least under a tropical sun, is virile but a short time; that judging by a single case witnessed the disease in man is trivial.

If there be any truth in the above, it follows that the only interest as to an infected animal is that it be correctly segregated, and, that being arranged, the important part of further preventive measures is the scrupulous searching for, and destruction of, widely scattered infective matter. This implies inquiry as to the origin and daily history of the animal, holding in mind that whilst fields may be in varying degree in parts contaminated, concentration of infection must be expected not solely in byres and within farmhouse precincts, but in paths leading to them and, indeed, wherever the animal had been driven. Railway cattle wagons and their approaches should be especially suspect.

How to meet the requirements of disinfection under such conditions doubtless has been duly met by the Agricultural Department, within farmhouse precincts, by customary methods; but where paths, earthen floors, and scattered and possibly infected straw fragments beyond such areas are concerned, I believe strongly in the use of flaming. In 1899 I made, in the interests of plague prevention, simple bacteriological experiments on discharge—stained earthen floors, with heat produced by kerosene gas compressed in cylinders, which showed this mode could compete with the use of perchloride of mercury solution. In 1903, in the presence of foot-and-mouth disease, I found a more suitable portable apparatus to be a slightly modified Lucal burner which, at small expense, projects a flame of intense heat under absolute control. This in practice gave full satisfaction. At my request, Lieut.-Colonel (then Captain) S. R. Christophers, proved the utility of the apparatus by complete bacteriological experiments. In the absence of a recognised microbe, *B. coli communis* was utilised by him.

The chief effort of the Agricultural Department has been the slaughter of animals at the net cost of £1,161,000. It would seem it has relied too long upon a method that would be justifiable solely at the commencement of an epizootic, in the absence of isolation accommodation and of inspecting staffs; but a stage must by this time have been reached in areas where this first step has been unsuccessful, where it would now be profitable to erect rapidly cheap isolation shelters with impervious platforms at central points, served by staffs vested with compulsory powers of inspection and furnished with motor lorries for transport of animals thither. A system of slaughter pursued beyond the limits thus suggested must result in concealment by owners and, consequently, the object in view be defeated.

I am, Sir, yours faithfully,
W. G. King,
London, N.W., Dec. 18th, 1923. Colonel, I.M.S. (retd.)

THE FUTURE OF THE TUBERCULOSIS CAMPAIGN.

To the Editor of The Lancet.

Sir,—Many who gladly acknowledge the success of the tuberculosis campaign in the past are only too conscious of the greatness of the task before us, and are wondering whether our present methods will suffice to bring us the ultimate success that all hope for.

The question arises, then, what is the world needing in relation to tuberculosis, and on what lines is that need to be met? Are we to concentrate our efforts primarily on the cure of the individual by sanatorium methods? This, of course, would be quite reasonable were our knowledge no more fundamental than that of our forefathers. Such a course, however, would never rid us of the scourge of tuberculosis. The conquest of typhoid, malaria, and small-pox, &c., was attained by working on much broader lines than the mere treatment of individual cases. Has not the time arrived for working on broader and more fundamental lines in relation to tuberculosis? We do rightly in offering the best conditions to the individual to enable him to conquer his disease; and all engaged in sanatorium work can point to cases which for all practical purposes are cured. An article on "Sanatorium Treatment Contrasted with Home Treatment," by Dr. G. L. Cox,[1] is of interest as a demonstration of prolongation of life resulting from the former. Let us then "hold fast that which is good." Sanatorium treatment, particularly with the addition, in suitable cases, of artificial pneumothorax or extra-pleural thoracoplasty, is of tried and proved and established benefit, which no wave of pessimism should deprive us of. Yet the great general question remains untouched. The same may be said of other excellent measures—e.g., the institution of farm colonies, training colonies, and village settlements. Even when we add more definitely preventive measures to our list, such as segregation of infective cases, with its necessary limitations, and educational efforts among healthy and diseased, we still feel that we are doing little more than playing with a situation of vast magnitude and terrible seriousness.

What, then, is the urgent need of our time? We require to get rid of tuberculosis by robbing the bacillus of suitable soil for its development. In other words, a scheme of general anticipatory immunisation is our only hope. This becomes the more evident as we realise that even should our present methods (including the provision of pure milk, and so forth) at length suppress the disease; we should soon lose the degree of immunity that we now enjoy, and become the most susceptible nation on earth, till exterminated by epidemics of acute tuberculosis. We require, then, to replace the haphazard and therefore dangerous means of immunisation that now prevail (through receiving unmeasured doses of living bacilli into our bodies), by methods of immunisation scientific and effective, and withal safe. The greatest national need, then, is a universally applicable preventive remedy applied early in life which will increase the degree of active immunity that we now enjoy. Is tuberculin (whether Koch's, Dreyer's, Nathan Raw's or anyone else's), such a remedy? In the light of Sir Robert

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[1] British Journal of Tuberculosis, January, 1923, p. 27.

Philip's experience, with perseverance in the percutaneous use of the older tuberculins, we judge that much can be done curatively and presumably preventively. Sir Robert Philip now definitely recommends the adoption of the preventive use of tuberculin. Dr. Nathan Raw advises the same course. Apart from declared results, the suggestion seems reasonable. Can we sit still and do nothing in regard to so pressing a matter? Has not the time come for a commission appointed by the Ministry of Health to make the requisite inquiries and recommendations so as to guide the profession at this juncture? The ramifications of the tuberculosis scheme throughout the land provide the only organisation existent capable of making a concerted effort on the lines indicated. The tuberculosis dispensary, already so valuable, would find a new raison d'être in the provision of that active immunity which is the crying need of the hour.

I am, Sir, yours faithfully,

Sheffield, Dec. 20th, 1923. R. M. FENN.

OPIUM IN CARDIAC DYSPNŒA.

To the Editor of THE LANCET.

SIR,—Dr. Claude Wilson in your issue of Dec. 22nd writes: "I cannot doubt that morphine must frequently have been used in these circumstances [cardiac "asthma"], . . . but apparently very little has been placed upon record." This he concludes from "an extensive though hardly an exhaustive search through the literature of the subject." In the *Practitioner*, 1869, iii., 342, as recorded by Dr. J. D. Rolleston, *St. George's Hospital Gazette*, xvii., Nov. 8th, 1909, I made known the invaluable aid of subcutaneous morphia (which I have found to be better than "opium") in cardiac and uræmic *dyspnœa* ("asthma" is a term belonging to a totally different clinical series). On turning to three popular text-books at hand—Osler, Fagge, and Price—I find its virtues in this agony duly insisted upon. So precious is it that I have hoped that if any words of mine should survive, it would be that he recommended subcutaneous morphia in cardiac dyspnœa (in the first instance against the protests of his colleagues).

I am, Sir, yours faithfully,

Cambridge, Dec. 20th, 1923. CLIFFORD ALLBUTT.

THE TREATMENT OF PYREXIAL TOXÆMIAS WITH ANTIPYRETICS.

To the Editor of THE LANCET.

SIR,—Since Sir Archdall Reid [1] and later other observers have advocated the above treatment I have used the same methods in five different cases with the striking results given in the following short résumé.

1. A case of puerperal fever occurring on tenth day; midwife's case, in which I was called in to suture perineum; wound healed primary intention, but fever of 102° F. and pulse-rate 120 on date mentioned. No physical signs except malaise; antipyretic treatment ter die. Result, temperature normal in 48 hours; no further trouble.

2. A very debilitated woman with physical signs strongly suggestive of pulmonary tuberculosis, but sputum negative. Temp. 102°–104° F., pulse 130; condition grave. Same treatment; normal temp. in three days; no further pyrexia and gradual return to health except, of course, the physical signs in chest still remain, though to a less marked extent.

3. Case of puerperal *B. coli* pyelitis with high fever (up to 104·2° F.) and unaccompanied by rigors; flooded with alkalies, as so strongly advocated by Mr. Frank Kidd, my late chief at the London Hospital, and antipyretic treatment, p.r.n. In this case I reduced the temperature on one occasion by 6° to normal in four hours with simply 10 gr. of aspirin. Profuse sweating occurred, followed by refreshing sleep. The alkali treatment, of course, in this case was of primary importance, but here the promotion of free sweating with accompanying reduction of temperature was a most useful adjunct, the skin acting as an accessory kidney in the elimination of toxins.

4, 5. Two cases of adult lobar pneumonia; crisis in two days: respiratory distress for one day only. These two cases were remarkable for the absence of the distress so often seen in adult lobar pneumonia. In the first case the patient was sitting up in bed in two days working out football competitions, and his wife pooh-poohed the idea of pneumonia, though his right lower lobe presented all the classical physical signs of that condition. The second case when first seen had a temp. of 104·4° F., with delirium, and, as before stated, in 48 hours the temp. was normal and all anxiety passed. The lung condition, of course, goes through the ordinary process of resolution, but any treatment which banishes the distressing respiratory embarrassment which is so prominent a feature of this serious condition is well worth a trial.

For the use of your readers who are not familiar with Sir Archdall Reid's proposals as to treatment I may state that they are the exhibition of an antipyretic powder, as follows:—

Pulv. ipecac. co., gr. v.
Aspirin, gr. x.
Phenacetin, gr. v.

I myself have not strictly adhered to the above formula, sometimes incorporating quinine as well as the other drugs. No ill results follow (stimulants are given p.r.n., especially after the profuse sweating that occurs). The elimination of toxins in the sweat seems to be the secret of this treatment, and it is one that is well worth a trial in all forms of pyrexial toxæmia, being simple, inexpensive, and efficacious.

I am, Sir, yours faithfully,

Exeter, Dec. 15th, 1923. CHARLES H. CARROLL.

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[1] THE LANCET, 1921, i., 1211.

THE SHORTAGE OF NURSES.

To the Editor of THE LANCET.

SIR,—With reference to a letter in your issue of Dec. 15th on the shortage of nurses, I should like to say how strongly I agree with Miss Gertrude Cowlin in concluding that to establish a subsidiary nursing service would result in a poor nursing service for the community. In Russia this method has been in practice for many years, being the system adopted at the same period that Florence Nightingale propounded our present system in England. I had the opportunity of seeing the results—i.e., the care of acute illness by women totally unfit and untrained to carry out skilled nursing, the "Na-na"; and the qualified or fully trained nurses performing duties which would usually be confined to the medical profession in this country. The system has served to create, with the "Feldshers," men and women who undergo a short medical course of two years, terminated by examination, a subsidiary medical service, which has led to the majority of the poorer members of the community receiving no really skilled treatment, either medical or nursing. The present commissar of health, realising that the existing system does not provide the best outlook for the people, has invited help from British nurses to establish in Moscow a training school for Russian nurses under the English system.

I am, Sir, yours faithfully,

MURIEL A. PAYNE, S.R.N., A.R.San.I.

Woodford, Essex, Dec. 17th, 1923.

EDINBURGH ROYAL INFIRMARY.—At a meeting of the League of Subscribers, Sheriff Crole, member of the Infirmary Board, stated that the finances of the infirmary were now in a sound position. The expenditure for the past year amounted to £119,810, an increase of only £50 over the previous year, although the number of patients treated had greatly increased. Considerable economies had been effected, but efficiency had in no way been impaired. The cost per bed per annum was now £133 11*s.* 4*d.*, representing a decrease of £3 2*s.* 11*d.* from the previous year's figure. The total ordinary income had increased to £110,150 from £99,171. The voluntary contributions amounted to £68,721, an increase of £3009 for the year. This, he said, was another triumph for the voluntary system of hospital maintenance. The proposal to add two small wards to the ear, nose, and throat department, at a cost of about £12,000, will shortly materialise, and an extension in connexion with the X ray department is contemplated. Although the number of people who received treatment was large—15,043 in-patients and 46,693 out-patients—there was a waiting list of 17,000 to 18,000, and extension was urgently needed.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation held recently the following degrees were conferred:—

M.D.—A. W. Uloth, Pembroke; E. H. R. Altounyan and E. Wordley, Emmanuel.

M.B. and B.Ch.—E. Tagoe, Christ's.

M.B.—R. N. P. Wilson, Pembroke; G. H. Caiger, Caius; and C. Dunscombe, Downing.

At recent examinations the following candidates were successful:—

Third Examination for Medical and Surgical Degrees.

Part I., Surgery, Midwifery, and Gynæcology.—E. V. Beale, King's; F. M. Collins, Pembroke; H. V. Coverdale, R. Cove-Smith, and W. H. Craib, Caius; G. J. V. Crosby, Christ's; D. E. Cuffey, Pembroke; J. R. B. Dearden, John's; V. W. Dix, Trinity; J. H. Doggart, King's; R. B. Fawkes, Queen's; W. H. Gervis, Caius; R. A. Highmoor, Clare; J. W. Hope Simpson, Trinity; R. Jackson, Downing; J. P. W. Jamie, Emmanuel; W. A. Lister, Trinity; H. R. Matthews, Corpus Christi; G. A. Metcalfe, Jesus; H. D. N. Miller, Down; S. M. Milner, King's; E. G. Morris, Clare; J. Ness-Walker, John's; C. E. Newman, Magdalene; G. G. Penman and A. D. Porter, Pembroke; E. A. B. Pritchard, King's; R. H. T. Rea and R. L. Rhodes, Caius; W. L. Roberts, Clare; R. A. M. Scott, Emmanuel; W. G. Scott Brown, Corpus Christi; F. A. H. Simmonds, Emmanuel; L. V. Snowman, Down; G. L. Thompson, Trinity; G. K. Thornton, Corpus Christi; K. W. Thorp, Caius; F. C. O. Valentine, Magdalene; S. Vatcher, Trinity; A. L. Walker, Pembroke; R. K. Wilson, Trinity House; F. R. Winton, Clare; and H. Yates, King's.

Part II., Principles and Practice of Physic, Pathology, and Pharmacology.—J. C. Ainsworth-Davis, Christ's; L. J. Bendit, Queen's; N. E. Chadwick, John's; W. H. Craib, Caius; F. E. Graham-Bonnalie, Christ's; G. T. Henderson, Caius; E. G. Holmes, Christ's; J. W. Hope Simpson, Trinity; R. Jackson, Down; L. P. Lockhart, Caius; C. A. Lupton and R. J. Lythgoe, Trinity; T. K. Maclachlan, Pembroke; F. H. Mather, Sidney Sussex; G. A. Metcalfe, Jesus; G. C. Millis, Queen's; E. S. Page, House Selwyn; R. J. V. Pulvertaft, Trinity; B. E. Schlesinger, Emmanuel; M. H. Webb Peploe, Trinity; R. H. White, King's; R. K. Wilson, Trinity House; and G. M. Brown, Girton.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Dec. 19th the Vice-Chancellor, Mr. H. J. Waring, being in the chair, Dr. Eleanor M. Scarborough was appointed as from Jan. 1st, 1924, to the recently-instituted readership in Pharmacology tenable at the London School of Medicine for Women. She has held resident clinical appointments at the Elizabeth Garrett Anderson Hospital and at the Royal Free Hospital. In October, 1919, she was appointed demonstrator in pharmacology at the London School of Medicine for Women, and since 1921 she has been assistant lecturer in that subject at the school. Prof. Hugh MacLean was awarded the William Julius Mickle Fellowship (of the value of £200) for 1924 in respect of the work which he has carried out during the past five years in experimental medicine. This Fellowship is awarded annually by the Senate, under the terms of the Mickle bequest, to the man or woman who, being resident in London and a graduate of the University, has done most to advance medical art or science within the preceding five years and has therein shown conspicuous merit.

At examinations held recently the following candidates were successful:—

M.D. Examination.

Branch I., Medicine.—John V. C. Braithwaite, Guy's Hosp.; Rhys T. Lewis, Univ. Coll. Hosp.; Montague Maizels, Guy's Hosp.; Merell Philippa Middlemore, London Sch. of Med. for Women; and Manek Jamshedji Panthaky, King's Coll. Hosp.

Branch III., Psychological Medicine.—Mary R. Barkas (University Medal), St. Mary's Hosp.

Branch IV., Midwifery and Diseases of Women.—Sybil G. Mocatta (University Medal), St. Mary's Hosp.

Branch VI., Tropical Medicine.—Trevor L. Bomford, St. Bart.'s Hosp.

M.S. Examination.

Branch I., Surgery.—Hugh J. McCurrich, Bristol University and St. Bart.'s Hosp.; and Alan C. Perry, London Hosp.

UNIVERSITY OF SHEFFIELD.—The following students have recently passed the Final Examination for the degrees of M.B., Ch.B.

George Ritson Bailey, Lancelot Harry Copping, Thomas Ronald Forsythe, Cyril Handley Greaves, Carl Myers, John Emmet Tannian.

UNIVERSITY OF MANCHESTER.—At examinations recently held the following candidates were successful:—

Final M.B. and Ch.B. Examination.

New Regulations.

C. N. Aldred, William Broadhurst, J. F. Bromley, Bessie E. Cook, R. W. Fairbrother (distinction in Obstetrics), Madge E. Heywood, Bertha Kahn, L. W. Kay, A. C. Kelly, V. F. Lambert, W. B. McKelvie, Marjorie M. O'Dea, R. W. Parker, Marjorie Robinson, Kate B. Scott, Agnes Seaston, H. F. Shaw, Marjorie Thompson, Sarah Walker, Jane M. Wilde, and Marjorie Youatt.

Obstetrics and Surgery.—R. S. Adam, Margaret A. Bromhall, W. C. V. Brothwood, T. A. Brown, J. A. Crowther, Mary S. Davies, T. E. Davies, Reginald Ellis, Leo Fay, C. R. Fielding, A. G. Forbes, Anne H. Glancy, J. W. Graham, Philip Gregory, Edward Holmes, Winifred L. Horton, J. N. Hudson, Phyllis Kaufmann, David Kemp, Hilda M. Linford, F. R. Lockhart, Samuel Pope, L. J. Prosser, Albert Riley, Eileen Sheehan, Dorothy Simmons, John Sims, G. S. Smith, A. R. Somerford, James Troup, H. M. Turner, Charles Wilcocks, and Geoffrey Williamson.

Obstetrics.—J. H. Anderson, Solomon Bernstein, Madge E. Edwards, P. G. Johnston, Alice M. Orrell, R. F. Stubbs.

Forensic Medicine.—C. E. W. Bower and Gladys F. A. McLean.

Hygiene and Preventive Medicine.—C. E. W. Bower, Charles Eccleston, Gladys F. A. McLean, W. M. Roberts, H. C. Smith, and Eric Whiteside.

Third M.B. and Ch.B. Examination.

Pathology.—Louise Aronovich, H. K. Ashworth, Marion L. Bainbridge, C. H. Bamford, A. R. Barber, J. R. Beal, Pieter Bester, R. H. Blackburn, *N. W. Bolton, Lilian Bond, G. H. H. Booth, Kathleen M. Boyes, Lillie M. Burton, Marguerite E. Cliff, T. K. Clifford, John Crook, T. A. Danby, A. A. Davis, N. E. Delaney, L. F. Evans, Mary Evans, J. D. Farquhar, Barnett Fink, S. J. Firth, Riad Girgis, Dorothy Guest, T. S. Hanlin, Zaky Hanna, Mary Harburn, F. S. Hawkins, Barnett Hirsh, G. D. Hithersay, J. L. Holt, *R. L. Holt, John Hunt, E. P. Hyde, May Johnson, Walter Johnson, G. W. Jones, J. T. C. Keddie, J. H. Kitson, C. T. Marshall, W. D. Mitton, S. L. Mucklow, Archer Pearson, Harry Pigott, R. H. Poyser, *Joan Robinson, M. R. Sagar, N. F. Seed, Raphael Shaffer, W. H. Shepley, A. D. Shubsachs, W. S. Slater, Agnes G. Smiley, *F. H. Smirk, Graham Stenhouse, Jane B. Stubbs, J. K. Thomas, Jacobus Viljoen, J. C. Wilson, and Reginald Wood.

* Distinction in Pathology.

Pharmacology.—R. S. Abraham, Agnes M. Bodoane, Gerald Bradley, Gladys Brocklehurst, J. F. Caithness, D. E. Francis, Zaky Hanna, L. C. Peringuey, Mary I. Prentice, Francis Reynolds, Evelyn I. M. Sheppard, W. C. D. Walmsley, and R. T. Wimmer.

UNIVERSITY OF GLASGOW: NOMINATIONS TO FELLOWSHIPS.—The following awards have been made by the Senate:—

Faulds Fellowship in Medicine: Dr. John M. Johnston. Senior Arnott Prize, Physiological Physics: David P. Cuthbertson, B.Sc., and Herbert H. Pinkerton (equal). Junior Arnott Prize, General Physics: William A. Mackey. James Macfarlane Bursary: William A. Mackey and William F. Greer (equal). Lorimer (Medical) Bursary in Botany: William A. Mackey. Lorimer (Medical) Bursary in Physics: John M. Brewster. Mackintosh Bursary in Mental Science: Max Gorfinkel. Walton (Medical) Bursary: James Morrison. Brisbane (Medical) Bursary: Alan A. MacDougall, M.A. Dr. Thomas Gibson (Medical) Bursary: Annie B. Price. Joseph Coats Memorial Scholarship in Pathology: Dr. Sarah H. Nelson. Frederick William Penman Memorial Scholarship in Pathology: Dr. Sarah Nelson. Arbroath (Medical) Bursary: Herbert H. Pinkerton. Monteith (Medical) Bursary: John Chalmers. Rainy (Medical) Bursary: James Wemyss. Gardiner (Medical) Bursary: David F. Anderson. Andrew Weir (Medical) Bursary: Gavin McCallum.

A house in the neighbourhood of Glasgow University has been gifted to the Students' Welfare Scheme by Mr. J. M. Robertson, of Glasgow. It is to be used as "a professor's house, hostel, or other university purpose calculated to preserve the amenity of the neighbourhood."—The University Library has been left a legacy of £500, free of legacy duty, by the late Mr. J. F. Orr, writer, of Glasgow.

UNIVERSITY OF EDINBURGH.—The University Court, on Dec. 17th, received the offer of £50,000 from the Rockefeller Foundation Trustees for the fuller equipment of the medical teaching and research facilities. This munificent gift is to be devoted specifically to the establishment of a clinical laboratory in connexion with the Royal Infirmary and to complete the endowment of the Professorship of Surgery on a full-time basis. The Trustees have offered, in addition, an annual grant of £1750 for a period of not less than five years, to meet certain salary charges in clinical medicine and clinical surgery. The need for extension in the Edinburgh Medical School has been acutely felt in recent years, particularly in regard to post-graduate teaching, the extension demanding both space and money. While space still remains a problem, the Rockefeller gift should enable the University to enjoy in the future an even higher reputation than it does at present; nor will the additional advantages be merely academic, in no less degree will the patients benefit from them. The proposals for coöperation in the University's plans of rearranging the departments of medicine and surgery were presented to the Rockefeller Trustees by Dr. Richard W. Pearce, the Director of the Division of Medical Education of the Rockefeller Foundation, and the Trustees authorised Dr. Pearce to assist in the realisation of these plans as far as financial coöperation with the Foundation was involved. Before the offer can be formally accepted the permission of the managers of the Royal Infirmary must be obtained for the construction of the necessary buildings. Negotiations will doubtless be opened immediately.

At the graduation ceremonial, held in the M'Ewan Hall on Dec. 14th, the following degrees were conferred :—

Doctor of Medicine.

*Robert C. Begg (in absentiâ), Ronald M'Donald Cairns, Ethel Cassie (*née* Wiseman), †Alexander Dower, Francis Ernest Gunter, William Thompson Hall, Alexander Joe, Isaac H. Lipetz, Andrew M'Farlane (second-class honours), *Douglas Alexander Miller (second-class honours), David H. Russell, and *Claude W. Stump.

* Awarded Gold Medal for thesis. † Commended for thesis.

Doctor of Philosophy.

In the Faculty of Medicine.—Henry Dryerre.

Bachelor of Medicine and Bachelor of Surgery.

James B. Adamson, Harry Allan, Frank Allardice, Ian R. Anderson, David Arnott, James N. Banks, David M. Bertram, Camaralzama C. Boudou, Edmund R. Boyd, Joseph Braithwaite, Jessie R. Brash, Edward H. Brindle, John C. R. Buchanan, Andrew Bury, John M. Caie, Margaret D. Cairns, Kathleen S. Campbell, Roy F. Campbell, James T. D. Clark, James L. Connacher, John G. Cormack, James W. Cromarty, Ewen G. Dalziel, Alexander W. Davidson (second-class honours), John Davidson, James P. Davie, Hendrik A. N. Dippenaar, William G. Dobson, Isabel M. A. Doeg, Leslie G. Drury, Robert H. Dunlop, Lister M. C. Duthie, Robert W. Eason, Margaret G. Falla, William Foote, William M. Ford-Robertson, Walter M. Forster, William C. Fothergill, Donald A. Fraser, John F. Fraser, Eric M. R. Frazer, Laurence S. Frost, Maurice Gelb, George M'K. Gibson, Sydney Gill, Alexander Gillies, Alexander C. Gillies, David Gold, Margaret H. Gordon, Allan D. Gould, Ralph W. Graham-Yooll, Lionel P. Greson, Alexander B. Guild, William F. Hamilton, Herbert C. Haslam-Fox, Leo E. Henderson, Charles V. Hendry, Hieronymus Hoffmann, Ellis G. Hunter, Louis Jaffit, Eric W. C. Jobson, Willian Jones, Morton Kahn, Isabella Kerr, Jenny C. King, Walter H. Kluge, Annie G. Learmouth, John G. Leebody, Alexander Leishman, Robert V. Liddell, Elizabeth M. Lindsay, Robert Lockhart, Graham Louw, David B. Low, Robert I. M'Alley, William N. M'Arthur, Joseph Maccabe, George H. M'Cafferty, Sydney J. M'Cafferty Andrew W. M'Cay, Peter A. M'Credie, Donald Macdonald John D. Macdonald, Robert Macfiggans, Jane Clarke M'George, Janet M'Lean Mackay, David T. Mackie (second-class honours), John B. Mackie, Catherine J. Maclaren, Ian H. Maclean, Samuel R. Macmillan, Duncan A. B. Macnicol, George S. Marr, Ebenezer B. Mercer, Hugh Miller, John Milne, George W. Monro, John V. Neilson, Alexander S. Nicol, James T. B. Nicoll, Bryce R. Nisbet, George Ormiston, Violet Oswald, James R. H. Pasqual, Douglas G. Paterson, William D. Paterson, Ian A. M. Paton, Milorad Petrovitch, Walter J. R. Pickles, Robert K. Porteous, Geoffrey Priestman, Percival V. Pritchard, Walter H. B. Ramsay, William Ramsay, Jeanne V. Rees, Richard E. B. Rees, John J. Robb, George Robson, Alfred Rosenbloom, Robert J. Rosie, Margaret G. Ross, Hyman L. Rubin, Cecil G. A. Salvesen, Robert E. W. Sandison, Alexander Scott, Jocelyn M. S. Scovell, John A. Shaw, Andrew Simpson, George W. Simpson, Ann F. G. Smith, Cornelius R. Smuts, Neil R. Smuts, William R. Sprunt, John P. Stewart, Frank M. Stuart, Thomas R. M. M. Sutherland, William R. Terry, Felix F. du Toit, Thomas S. Torrance, Frank Towers, Elsie M. Walker, Edwin D. M. Wallace, Hugh K. Watson, John H. Watson, Frederick H. Webb, Alexander B. Williamson, Winifred Wood, and George W. Yule.

The Ellis Prize in Physiology has been awarded to Dr. May L. Walker.

Royal College of Surgeons of Edinburgh.—At a meeting of the College held on Dec. 19th the following candidates, having passed the requisite examinations, were admitted Fellows :—

Albert C. Abbott, Thomas G. D. Bonar, Hendrik J. P. Bruwer, Gerrard Burnett, Thomas L. Clark, Robert M. Dannatt, Ernest C. Fahmy, Griffiths J. Hughes, William Ibbotson, Hubert S. Jacobs, Thomas P. McMurray, James H. Rawlinson, Creina Shepherd, Charles H. Thomas, Henry E. Y. White.

Sinnatamby Thambipillai having passed the requisite examination was admitted a licentiate of the College.

University of Dublin, School of Physic, Trinity College.—At examinations held recently the following candidates were successful :—

Final Medical Examination.

Part II., Medicine.—Wentworth A. Taylor (passed on high marks), Patrick K. Dixon, Joseph E. Eliason, John M. Mounsey, Henry Isaacson, Israel Marin, Jan Andreas du Toit, Etienne R. Hafner, Jack A. Levitt, John S. Glasgow, William L. W. Smith, Robert E. Fausset, William F. Whaley, Douglas L. Hemmingway, Gladys Weatherill, Kathleen E. Hill, Alfred J. Beckett, John M'Clelland, Francis C. B. L. B. Crawford, Charles W. J. Ingham, William D. Speedy, Dermod H. F. Milmo, James V. Williams, Pieter C. du Plessis, Anthony B. Monks, Albert V. Wood, and Margaret O'Neil.

Surgery.—Patrick K. Dixon, George F. T. Saunders, Robert L. C. Fisher, Morris Cohen, N. E. H. P. Williams, William L. W. Smith, John L. Stuart, John J. Laing, James E. Deale, Cecil J. M'Quillan, John M'Clelland, Henry W. L. Dale, Louis Harris, Martha Reid, Rudolf Schaffer, Charles W. J. Ingham, James J. O'Grady, Frederick G. Brown, Jack M. Gordon, Isobel G. Smith, Johannes H. Stals, Philip P. van der Merwe, Kathleen E. Hill, James A. MacDonald, Henry Isaacson, Hans J. Hugo, Isabella H. Speedy, Eileen A. Boyd, and Jan Andreas du Toit.

Midwifery.—Desmond K. Lyons, John K. S. Thompson, Otto G. Wilde, George A. Cowan, John R. Bradshaw, and George Robinson (all of whom passed on high marks), Lewis C. Brough, James S. Armstrong, Simon Wigoder, Louis E. J. Werner, John A. MacDonnell, John N. Atkinson, John H. Bowyer, Wilfred H. Anderson, Robert E. Steen, Dorothy J. Booth, François J. Swanepoel, James W. Wallace, Lionel S. Levitt, Cornelius J. N. Loubser, Kenneth F. Mackenzie, Leslie M. Whitsitt, James L. Marshall, Joseph Morris, John L. F. Steele, Jerreth Horwich, William A. Dickson, Charles J. du Plessis, Godfrey W. Garde, Robert Warnock, John D. Watson, William A. Redmond, Eileen Brangan, Norah M. Gilcriest, Paul N. H. Labuschagne, Richard L. G. Proctor, Israel Strasburg, Herbert Birney, Alexander L. Dobbyn, Raymond J. G. Hyde, Bertha H. Lawler, Paul D. Piel, Herbert W. Strong, Lucy E. R. Pigott, Dorothy I. Henry, Howard St. George McKenny, Robert G. F. Thompson, George D. Rankin, Ralph A. Webner, Robert W. Harte, Louis P. Sayers, and Angel Valentine B. Crawford.

Final Dental Examination.

Dental Surgery and Pathology ; Dental Mechanics and Metallurgy ; Orthodontia.—John C. M. Shaw, John H. B. Tuke, Frances E. Bailey, Thomas R. Wall, James A. N. Dickson, and Maureen Claire Mulhern.

Royal College of Physicians and Royal College of Surgeons in Ireland Conjoint Examinations.—At examinations held recently the following candidates were successful :—

Third Professional Examination.

Sybil Atkinson, Abraham Clein, C. W. Coffey, W. Gilbert, J. Graff, J. P. Hederman, T. T. Joyce, Kathleen Keirans, E. H. McGinty, E. G. H. McNally, J. J. McSharry, A. H. Mackay, G. A. Moorhead, P. J. Mulcahy, J. C. Murphy, W. G. Myers, J. O'Neill, C. A. O'Riordan, T. S. Osborne, J. Rafferty, J. F. Scales, E. Whelan, and D. G. White.

Final Professional Examination.

Francis J. N. Carney, Andrew E. Clements, Michael H. Dobbyn, Francis D. Fitzpatrick, William G. C. Fitzpatrick, Henry I. Hawkes, Rosaleen H. Hoskin, Kathleen O. M. Kennedy, Catherine M. King, George A. Little, John J. Marlborough, Sarah Matson, Francis McConnell, Edward A. McManus, John J. O'Donnell, James O'Donnell, William O'Neill, Vincent J. O'Toole, Herbert C. Patterson, Gilbert F. Plant, Patrick B. Ryan, Jonathan Unsworth, and Samuel P. Wallace.

Diploma in Public Health.

Thomas K. Reddin and John J. Ryan.

Royal College of Surgeons in Ireland.—At recent examinations the following candidates were successful :—

Final Fellowship Examination.

Charles Cooper, Joseph C. Gillespie, Margaret Holliday, Norman P. Jewell, Robert J. May, Richard W. Power, and Frederick H. Whyte.

Final Dental Examination.

Robert H. England, John I. Hughes, Henry F. B. Kelly, Valentine McCarthy, Kevin V. O'Farrell, and James F. Pegum.

West of Scotland Foreign Service Medical Club.—This Club, which consists of members of the medical profession resident in the West of Scotland, who were overseas on service during the war, held its fifth annual dinner in the Grosvenor Restaurant, Glasgow, on Dec. 18th, the President, Colonel A. Dryden Moffat, M.D., in the chair. There were present as guests of the evening, Dr. Thomas Finlayson Dewar, President of the East of Scotland Foreign Service Medical Club, Dr. William F. Gardiner, secretary of that Club, and Prof. Archibald Main, D.D., of the University of Glasgow.

The late Sir John Walton Browne.—Sir John Walton Browne, who died on Dec. 19th in his 79th year, was consulting surgeon to the Belfast Royal Hospital and to the Ulster Hospital for Children, and was well known as an eye, ear, and throat surgeon. He was the son of the late Dr. S. Browne, R.N., formerly Mayor of Belfast, was educated in his native town, in London, Dublin, and Vienna, and graduated in Arts at the Royal University of Ireland in 1863, taking his medical degree four years later. For some time he had a general practice in Belfast before becoming surgeon to the Belfast Ophthalmic Hospital and lecturer in ophthalmology at the Queen's University of which he was a senator. He was at one time president of the Ulster Medical Society, of the North of Ireland Branch of the British Medical Association, and of the Ophthalmological Section of the British Medical Association when that body held its annual meeting at Belfast in 1909. He was knighted on the occasion of the King's visit to Belfast in 1921.

Sir Robert W. Philip has been appointed an Honorary Physician to His Majesty in Scotland, in the room of the late Dr. David W. Finlay.

Small-pox in England and Wales.—Eighty-nine cases of small-pox were notified in the sanitary districts of England and Wales during the week ended Dec. 15th, the counties affected being Derbyshire, Gloucestershire, Middlesex (Wood Green), Notts, and Anglesey (Amlwch).

We regret to announce the death, on Dec. 21st in Dublin, of Sir Lambert Ormsby, a late President of the Royal College of Surgeons in Ireland, who held the rank of Lieut.-Colonel as Consulting Surgeon to the New Zealand Expeditionary Force.

Cheaper Insulin.—Messrs. Burroughs, Wellcome, and Co. announce that on and after Jan. 1st, 1924, insulin will be supplied by them at the reduced price of 12*s.* 6*d.* per phial containing 100 units (10 doses) in 5 c.cm. A similar announcement by Messrs. Allen and Hanburys and the British Drug Houses, Ltd., was noted in our columns last week.

Welsh National School of Medicine.—The Board of Trustees of the Rockefeller Foundation at their meeting last week agreed to make a donation of £14,000 to assist in the development of the medical unit of the school. The money is to be devoted to the building of laboratories, the provision of part of the initial equipment, and the improvement of clinical facilities for the medical unit at the Cardiff Royal Infirmary.

Metropolitan Hospital Sunday Fund.—The annual meeting of this Fund was held at the Mansion House under the presidency of the Lord Mayor of London on Dec. 19th, when the report showed that the collection for the year amounted to £93,892, or £6997 less than the previous year's total. The collections in the places of worship amounted to £43,167, or £5449 less than in 1922. Donations also showed a decrease. Hospital Sunday, 1924, was fixed for June 22nd.

Remuneration of Insurance Practitioners.—Meetings of the Court of Inquiry have been arranged for Friday, Jan. 4th, and Monday and Tuesday, Jan. 7th and 8th, at 10.30 a.m., at the Ministry of Health. These meetings will be open to the public and the press. The Court will hold such further meetings as may be necessary. Approved societies wishing to submit evidence to the Court are asked to communicate with the secretary, Mr. R. H. Crooke, Ministry of Health, Whitehall, S.W. 1, enclosing a statement of the nature of the evidence which they wish to give.

Mental After-care Association.—This Association for poor persons convalescent or recovered from institutions for the insane is urgently in need of funds to carry on and extend the work. Last year over 944 persons were assisted, the majority of whom have done well. The prevention of relapse is one of the chief objects of the Association. Contributions will be gratefully received by the secretary, Miss Vickers, Church House, Dean's Yard, Westminster, London, S.W.

Queen's University Club, London.—A dinner of the club, followed by a musical programme and dance, was held on the evening of Dec. 13th at the Criterion Restaurant, Piccadilly. The members and guests, of whom there were over 100 present, were received by Dr. and Mrs. J. J. Redfern, of Croydon. Membership, without nomination, was declared open to those eligible as past and present students of Queen's University, Belfast, on payment of entrance fee and subscription before March 1st, 1924, to the Hon. Treasurer, Mr. R. A. Kerr, 17, Wimpole-street, London, W. Full particulars may be obtained from the Hon. Secs., Mr. W. McK. H. McCullagh, 152, Harley-street, W., and Dr. E. G. B. Calvert, 17, Wimpole-street.

North-West of England Obstetrical Society. The Presidential address to the Society was delivered by Prof. Blair Bell, in the rooms of the Liverpool Medical Institution on Dec. 20th last. The subject was Investigations into the Use of Lead in the Treatment of Malignant Disease, and was dealt with from its chemical, biological, and pathological aspects. Prof. Blair Bell told how his attention had been drawn to the possibilities of lead in this direction from a consideration of the action of the metal upon the chorion epithelium of the young embryo, a tissue which he regarded as a half-way stage between normal and malignant growth. But lead poisons not only chorion epithelium but also testis, ovary and nerve tissues, all being structures rich in phosphatide substances. The discovery that malignant growths were rich in phosphatides in proportion to their activity held out the hope that they too might be vulnerable. With the help of an able and distinguished band of colleagues, Prof. Blair Bell set himself to work out exactly the biological and toxic properties of lead, and certain new and valuable facts were discovered. The effect on the heart's action, the interference with kidney function, and the changes in the red blood cells were carefully studied in their earliest phases, with corresponding advantage to the clinician in enabling him to gauge his doses with safety. Particular stress was laid on punctate basophilia in the red cells and diminution in the amount of the urine. With increasing knowledge, toxic symptons were becoming infrequent. The chemistry of the interaction of lead salts and the phosphatides was a difficult and complicated subject, and the effect of lead on pure lecithin, for instance, very hard to estimate. The evidence went to show that the mixed phosphatides found in the body were precipitated. The actual preparation of lead employed was a colloidal solution of lead stabilised by the addition of calcium. In practice this is injected intravenously, but it is hoped that a compound with cod-liver oil, used intramuscularly, may prove an efficient substitute. Previous to the meeting a few cases had been shown of inoperable cases of malignant disease, spheroidal-cell cancer of the breast, sarcoma with almost complete destruction of the scapula, and others, all apparently cured.

Medical Society of Climatology and Hygiene of the French Riviera.—The annual banquet was held at Nice on Dec. 16th and was attended by a large number of doctors practising in the district. Dr. M. Faure (Nice) urged the importance of giving publicity to the beneficial effects of the climate of the Riviera as opposed to exaggerated accounts of the available amusements. He pressed the need of attempting the extermination of flies and mosquitoes in order to extend the popularity of the Riviera into the summer, and instanced the success of the methods applied elsewhere. Dr. Borrel, of Strasbourg, gave a striking description of the good results of such methods in that city. Dr. Samways, of Mentone, contrasted French and English ways of improvements. The French ideals soared too high and often failed in their attainment from their sheer immensity, whereas the English preferred to begin more modestly and achieve something definite, extending their plans as success followed.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

Monday, Dec. 31st.—10 a.m., Mr. Maingot: Surgical Pathology. 2 p.m., Mr. Simmonds: Surgical Out-patients. 2.30 p.m., Dr. Saunders: Medical Wards.

Tuesday.—11 a.m., Dr. McDougal: Electrical Department. 12 noon, Dr. Burrell: Chest Cases. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Wednesday.—10 a.m., Dr. Saunders: Medical Diseases of Children. 2 p.m., Dr. Owen: Medical Out-patients. 3 p.m., Dr. Pernet: Skin Department.

Thursday.—10 a.m., Dr. Grainger Stewart: Neurological Department. 2 p.m., Mr. Bishop Harman: Eye Department. 2 p.m., Dr. Scott Pinchin: Medical Out-patients.

Friday.—10 a.m., Dr. Drummond Robinson: Gynæcological Operations. 2 p.m., Mr. Banks-Davis: Throat, Nose and Ear Department. 2 p.m., Mr. Sinclair: Surgical Out-patients.

Saturday.—9.30 a.m., Dr. Burnford: Bacterial Therapy. 10 a.m., Dr. Saunders: Medical Diseases of Children. 10 a.m., Mr. Banks-Davis: Operations on Throat, Nose and Ear.

Daily, 10 a.m. to 6 p.m., Saturdays, 10 a.m. to 1 p.m., In-patients, Out-patients, Operations, Special Departments.

Appointments.

Clausen, R. J., M.B., B.S. Lond., has been appointed Anæsthetist to Queen Mary's Hospital for the East-End, Stratford, E.

Coleman, C. J., M.D. Camb., D.P.H., Medical Officer of Health to the Holland, Lincs, County Council.

Galloway, R. L., M.B., Ch.B. Edin., Anæsthetist at the Salford Royal Hospital.

Grant, Marjorie A., M.B., Ch.B. Manch., Assistant School Medical Officer for Stockport.

Pope, H. B. M.R.C.S., L.R.C.P. Lond., Honorary Radiologist to Leeds Public Dispensary.

Renwick, Gordon, M.B., Ch.M. Sydney, Assistant Honorary Surgeon to the Royal Eye Hospital, Manchester.

Russell, G. Herbert H., L.D.S., Honorary Dental Surgeon to Leeds Public Dispensary.

Spinks, A. F. G., M.D., Honorary Physician, Maternity and Child Welfare, Princess Mary Maternity Hospital, Newcastle-upon-Tyne.

Thompson, G. K., M.B., Ch.B. Vict., to be Certifying Surgeon under the Factory and Workshop Acts for Sedbergh.

Jessop Hospital for Women, Sheffield: **Hall**, R. J. B., M.B., Ch.B. N.Z., Senior Resident Officer; **Fawcett**, A. W., M.B., Ch.B. Edin., and **Vickery**, C. E., M.B., C.M. Sydney, Assistant House Surgeons.

Manchester Royal Infirmary: **May-Atkinson**, Mrs. **Kate King**, M.B., Ch.B. Manch., Assistant Medical Officer to the Massage and Electrical Department; **Bryce**, A. G., M.D., F.R.C.S. Eng., Assistant Resident Surgical Officer; **Lund**, J. K., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Manch., Assistant Medical Officer.

University of Sheffield: **Morrell**, R. A., M.R.C.S., L.R.C.P. Lond., Lecturer in Radiology; **Wilkinson**, G., M.B., B.C. Camb., F.R.C.S. Eng., Lecturer in the History of Medicine; **Skerritt**, J. H., L.D.S. Eng., Lecturer on Operative Dental Surgery; **Barron**, D. C., M.D., Ch.B. Edin., Assistant Lecturer in Medicine.

Vacancies.

For further information refer to the advertisement columns.

Barnet, Wellhouse Hospital.—Asst. Res. M.O. £150.
Bournemouth, Royal Victoria and West Hants Hospital.—Res. H.S. £150.
Bradford Children's Hospital.—Hon. Asst. S.
City of London and East London Dispensary, 40, Wilson-street, Finsbury-square, E.C. 2.—Asst. Pharmacist. £200.
Galloway Royal Infirmary.—Jun. Res. M.O. £125.
General Nursing Council for England and Wales, 12, York Gate, Regent's Park, N.W. 1.—Examiners.
Hospital for Sick Children, Great Ormond-street, W.C.—Biochemist. £600. Res. Med. Supt. £300.
Hospital for Tropical Diseases, Endsleigh-gardens, N.W. 1.—H.P. £150.
Liverpool, Royal Southern Hospital.—Hon. M.O. Electro-therapeutic, &c., Dept., and Hon. M.O. Electro-cardiographic Dept.
Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. Res. M.O. £350.
Nottingham Children's Hospital.—Res. H.S. £150.
Notts County Mental Hospital, Radcliffe-on-Trent.—A.M.O. £400.
Orkney, Parish of Eday.—M.O.
Reading, Royal Berkshire Hospital.—H.P. Also Third H.S. Each £150.
Royal Army Medical Corps.—Commissions.
St. Mary's Hospital, London, W. 2.—Med. Supt. £400.
Sheffield Royal Hospital.—Cas. O. £150.
Union of South Africa, University of the Witwatersrand.—Senior Lecturer in Anatomy. £450.
Warwick County and County Borough of Coventry Joint Mental Hospital.—Med. Supt. £1000.
Westminster Hospital.—S. and Ophth. S.; also Asst. Ophth. S.

Births, Marriages, and Deaths.

BIRTHS.

Bourke.—On Nov. 22nd, at Bhagalpur, India, the wife of Captain U. J. Bourke, L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., I.M.S., of a daughter.

Macleod.—On Dec. 20th, at Lexham-gardens, W. 8, to May Eleanor, wife of Captain D. N. Macleod, M.B., B.Ch. Camb., R.A.M.C., of a son.

Pellow.—On Dec. 17th, at The Hook, Kingsclere, Newbury, the wife of Dr. Pellow, of a daughter.

Smythe.—On Dec. 18th, at Dunkeld, St. Cross, Winchester, the wife of Gerald Smythe, M.D., of a daughter.

MARRIAGES.

Bulloch—Baker.—On Dec. 18th, at St. Augustine's Church, Queen's Gate, William Bulloch, M.D., F.R.S., LL.D., Goldsmiths' Company, Professor of Bacteriology in the University of London, to Irene Adelaide (*née* Peyman), widow of Alfred Augustus Baker.

Cheyne—Bayley.—On Dec. 15th, at the Parish Church, Stenton, W. Hunter Watson Cheyne, M.B., to Grizel, elder daughter of Mr. and Mrs. I. F. Bayley, Halls, Dunbar.

Place—Turner.—On Dec. 22nd, at St. Margaret's Church, Burnage, Thomas Byron Place, junr., L.D.S., eldest son of Thomas Byron Place, L.D.S., of Crewe, to Mary Turner, M.B., Ch.B., D.P.H., eldest daughter of the late Martin and Amy Turner, of Manchester.

DEATHS.

Browne.—On Dec. 19th, at his residence, Lismore, Windsor-avenue, Belfast, Sir John Walton Browne, M.D., LL.D.

Chappel.—On Dec. 15th, at Clevedon, Altrincham, George Pester Chappel, M.D.

Lovell.—On Dec. 16th, at Ashburnham-road, Hastings, Walter Frederick Lovell, M.R.C.S., aged 74.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

## MEDICAL AND SANITARY WORK WITH THE BURMA CORPORATION.

By J. P. Cullen, M.D. Lond., D.P.H.,
MEDICAL OFFICER TO THE BURMA CORPORATION, NAMTU, NORTH SHAN STATES, BURMA.

Medical and sanitary work undertaken by private companies and corporations in outposts of the Empire is little heard of by the public at large. The latter labour under the impression that such companies exist solely for the benefit of shareholders, and have no other aim than that of paying dividends, and some account of the work of the Burma Corporation in other fields than those appertaining to the extraction of silver and lead from what is possibly the richest silver-lead proposition in the world may be of interest.

Geographical and Climatic Features of the District.

The Corporation's areas, situated in the northern Shan States of Burma, on the boundaries of the tropical zone, are, roughly speaking, 600 miles north of the port of Rangoon, and some 50–60 miles from the Chinese province of Yunnan, which supplies a large proportion of the native labour employed. Namtu, the headquarters, lies in the valley of the Namtu river, at an altitude of 1750 feet above sea-level. The other centres of activity are scattered partly along the main line of the Burma railways and partly along the Corporation-owned branch line, with its terminus at Bawdwin silver-lead mine. Over a large area of country the Burma Corporation attends to the medical and sanitary requirements of about 20,000 inhabitants, comprising Europeans and natives of all descriptions and colour. Taken as a whole, the climatic conditions of this area are not unfavourable; but Bawdwin, for example, situated at an altitude of 3000 feet, is less trying than Namtu at 1750 feet above sea-level. The monsoon season starts about May, and in the early days the combination of heat and moisture creates a certain amount of lassitude which passes off with the continued rainfall. The invigorating cold weather from November to March supplies the necessary stimulus for the succeeding hot months. The rainfall averages 60–70 inches per annum.

Public Health in General.

The European staff of the Corporation are accommodated in wooden bungalows, some of which are mosquito-netted. Electric light and water are laid on to each house, and while the majority are provided with a conservancy system of sewage disposal, some are connected up with small septic tanks. With an increased water-supply all the houses will probably soon be on a water-carriage system, and one of the most objectionable and insanitary features of Indian life will thus be removed. Accommodation for native employees varies from stone barracks for the coolie class of worker to houses built of wooden framework with matting walls and galvanised iron roofs for the better class. These houses are provided with pit or pail latrines, the number of which are calculated according to the population using them.

Water-supply.—Namtu at present obtains its water-supply from surface springs. The water thus obtained is open to the objection that it may be contaminated, though owing to the remoteness of human habitations such risk is probably slight. A greater objection is its hardness, which, besides causing trouble owing to deposit of lime salts in the reservoir pipe lines, has been shown to be a cause of diarrhœa, owing to the large proportion of magnesium sulphate derived from a dolomite formation. A new water-supply tapped at its source, and capable of yielding 190,000 gallons per 24 hours, and giving on a basis of 40 gallons per head a sufficient supply for a population of 4000–5000 people is now under construction. At Bawdwin mine and the other centres the water-supply is free from any risk of contamination.

Hospital Accommodation.—Infectious Diseases.

The medical staff comprises eight doctors, five being stationed at Namtu and the remainder at outlying stations. At Namtu the sanitary staff comprises two sanitary inspectors and 92 sweepers, at Bawdwin one sanitary inspector and 27 sweepers, and at the other centres in proportion to their requirements. All the sanitary inspectors hold the certificates granted by the Indian Boards of Examiners, know the native habits, and do their work efficiently and tactfully.

The Corporation's main hospital, reserved for Asiatic and Eurasian employees, and also subserving the large Government areas of Panghai and Ehaung, can accommodate 84 patients. It was opened in April, 1923, and comprises

(1) an administrative block containing offices for the chief medical officer and his chief assistant, an X ray room (with apparatus provided by Messrs. Watson and Sons, London), and a pathological laboratory equipped with microscopes, dark-ground illuminating apparatus, Cambridge rocking microtome, Garrow's agglutinometer stains and reagents, &c. ; (2) medical and surgical wards and dispensary ; and (3) a well-equipped operating theatre. In addition, there is a small separate European hospital of four male wards and one female ward. In the near future it is intended to amalgamate these two hospitals in order to increase efficiency and lessen cost. Outlying districts of importance contain small hospitals capable of accommodating three to four patients until such time as they can be safely transferred by rail to the central hospital at Namtu.

Epidemics have been carefully considered by the Corporation and its sanitary advisers ; the conclusion finally arrived at has been the building of a temporary hospital capable of rapid enlargement at a spot five miles out of Namtu, the policy being to provide accommodation which can be rapidly enlarged by the engineering staff in case of emergency, which can be destroyed after use, and which, being of a temporary nature, will require little upkeep and not fall into ruin from neglect for a period of years.

Effect of Foregoing Measures on the Health of the Population.

If, as has been stated, "the enteric fever mortality is the best test of sanitary condition, caused, as it is, by specific fæcal contamination of soil and water," then the sanitary state of the Burma Corporation is satisfactory, for no case of enteric has occurred during the past year. Cholera, which swept these valleys in 1918 and has again been reported in the northern Shan States, has not visited these parts for five years. Plague occurred in four cases in 1922. Two recovered, one after excision of a bubo in the groin, the other after intravenous injection of iodine. All cases were verified by bacteriological findings, and contacts were inoculated and kept under surveillance. The most effective measures dealing with the rat pest were found to be periodical rat drives. Trappings and poisoning were found unsatisfactory. No case of small-pox has occurred during the past three years.

Peculiar and Prevalent Diseases.

Of prevalent diseases, malaria undoubtedly holds the chief place, and the statistics are swollen to large figures when the native population is included. The natives are recruited not for their mental acquirements but for their capacity for hard manual work ; they only visit hospital when too ill to work. During 1922, 17,687 cases of malaria attended the various hospitals and dispensaries, with 100 deaths, or a mortality of 0·5 per cent. Amongst the European population only 22 cases were admitted to hospital, with no deaths. One case of blackwater fever was recorded in an Indian ; he had previously suffered from the disease, and recovered. Repeated blood examinations failed to discover the malarial parasite in this case. An examination of the urinary sediment revealed, however, short chains of streptococci. During the year popular lectures, including demonstrations of the malaria parasite, of anophelene and culex larvæ, and of children with greatly enlarged spleens were given. Two large swamps were drained, and mosquito brigades were organised. Malarial prevention is, however, an individual as well as a communal problem, and with an ignorant population progress is slow.

Relapsing Fever.—During the year 1922, 13 cases with one death occurred, the patient in this instance being in a very debilitated state when admitted to hospital. All the cases were met with among Chinese coolies from Yunnan, who arrive badly infested with lice. A delousing apparatus has been set up at Bawdwin, and each batch of coolies as it arrives is now deloused. The procedure was unpopular at first, but the Chinese, handled with tact, have come to realise the benefits of the method, and now submit readily. Medical treatment of the active disease consists in one or at the most two injections of neo-salvarsan. That relapsing fever can assume the nature of an epidemic, accompanied by a high mortality and giving grave anxiety to health authorities, is shown by the report on relapsing fever in the Madras Presidency in THE LANCET of August 4th, 1923.

Beri-beri.—This disease has been met with among the Chinese labourers. During 1922, 68 cases with 19 deaths occurred. Most of the cases were sporadic, but in one instance of 19 coolies attacked within a few days six died. On investigation it was found that the men had contracted with another Chinaman to feed them, the sole article of diet being polished rice. Samples of this rice, on analysis for phosphorus content, gave figures near or below the limit fixed by legislation. An improvement of the contractor's diet scale and a lessening of his profits followed.

Disease Traceable to Work in Mines.

Miners' Phthisis.—The Bawdwin mine is, in mining language, a "wet mine" and therefore free from dust. No case of pneumokoniosis or miners' phthisis occurred in it during 1922. The prevalence of pulmonary tuberculosis in Burma and the northern Shan States is a matter, however, that sooner or later will require investigation.

Ankylostomiasis.—Only two cases of this disease were met with in 1922, the worm, of the usual Eastern type, being discovered during a routine examination of fæces and not responsible for the patients' ill-health.

Plumbism.—This condition gave rise to much discussion during 1922. The difficulty of preventive measures for use in dealing with an ignorant class of labour was finally solved by the erection of a gigantic flue, the largest in the world, at a cost of ten lakhs of rupees. All fumes from the smelter are now taken up this flue by powerful suction apparatus instead of polluting the atmosphere at the mouths of the furnaces.

Venereal Disease is rampant in the tropics and Namtu is no exception to the general rule. No European should be allowed to come out east without plain warning of the risks incurred by promiscuous sexual intercourse, and he should be instructed in early treatment as carried out in the army. Much misery may be saved by a little plain talking. A knowledge of the prevalence of V.D. sometimes leads to curious errors in diagnosis, and salvarsan and its derivatives are still too frequently employed as diagnostic agents. Two cases of quaternary syphilis in natives came under observation during the past year ; one was of well-marked tabes following on insufficient doses of 914 (four injections), the other of thoracic aneurysm, showing post mortem well-marked naked-eye signs of syphilitic aortitis, and on section a gummatous mesaortitis.

Vital Statistics.

Whilst no satisfactory system of birth and death registration is in vogue throughout the area and the figure of 20,000 for the population is open to the criticisms attached to all floating populations, a few statistics are appended which may be of interest. The general or crude death-rate is estimated at 17·5 per 1000, as compared with 21·45 for the province (1922 report), and over 30 for British India as a whole. Malaria claimed a death-rate of 5 per 1000, and dysentery 0·75 per 1000. The mortality rate for plague was 0·1 per 1000, as against 0·516 for the whole province.

General Comments.

For such work as has been accomplished the sole credit lies with the management and the board of directors of the Burma Corporation, who have spared no trouble or expense. Much still remains to be done—e.g., the problems of a census of vital statistics, prompt notification of epidemics to a central authority, prompt distribution of the information so obtained, the ferreting out of latent foci of disease in out-of-the-way native villages, stricter vaccination, Government encouragement of research, and the opening up of a very rich country in order to provide the necessary financial support. Locally, the difficulty which confronted munition workers during the war—that of retaining maximum efficiency with maintenance of bodily health—faces us and will no doubt be tackled soon. A constant problem is to diagnose correctly the first case of any epidemic disease, the occurrence of which would entail a serious loss of revenue to the Government and Corporation.

ROYAL INSTITUTION DISCOURSES.

BIOLOGICAL sciences are to be well represented in the coming session at the Royal Institution. After Sir William Bragg's Christmas lectures on "The Nature of Things" (which he is naturally treating from the physical standpoint) and the tribute that is to be paid by Prof. H. E. Armstrong to the late Sir James Dewar, the programme of the Friday lectures will be found to have many points of contact with the medical profession. Prof. Hugh MacLean, in his discourse on insulin proposes to show why the previous attempts to isolate it failed. As full a description of its value and mode of application as is compatible with a lay audience will be given, and emphasis will be laid on its toxic action and the consequent need for very strict care in its use. In another discourse Prof. Elliot Smith will expound his views on the evolution of the human brain, emphasising the part played by the cultivation of vision and discussing how the human brain attained its distinctive feature—namely, the power of learning by experimentation, and the power of appreciating and interpreting the meaning of things and events in the outside world. Dr. Jocelyn Thorpe is discussing "Colours, Stains, and Dyes," and will point out how restricted Nature is in her way of forming colours, and how she relies more on physical than chemical means, the reason being that in coloured carbon compounds it is only the unsaturated molecules, which are very liable to change, that exhibit colour phenomena. As illustrations he will take the colours of the butterfly's wing, and of the feathers of many birds which depend on an arrangement of hair-like filaments so set as to reflect the required colour. Lastly, Sir Frederick Keeble is taking "The Plant Commonwealth and its Government" as his subject, and will deal with the new work that is tending to show the close relation existing between the tissues of plants. As in Sir James Dewar's time, the club rooms of the Institution will be open every Friday evening to members and their guests, for the exhibition of objects of scientific, literary, and artistic interest. Incidentally, the weekly exhibitions held during the sessions are a curious illustration of how ignorant the average Londoner is of his London. Many who attend the Friday lectures are unaware of their existence, and outside professional men of science there are few who realise that the Institution is essentially a club with a scientific and general library comprising some 60,000 volumes as one of its attractions.

CALENDARS AND DIARIES FOR 1924.

A CONVENIENT block calendar for 1924 has been issued by the Anglo-French Drug Co. (238a, Gray's Inn-road, London, W.C. 1.). There is provided for each day throughout the year a sheet of white paper four inches square for written memoranda, and the stiff hinged cover provided preserves the privacy of the notes, and yet by means of a window permits the date to be constantly seen. A certain number are available gratis on application to the company.

BIRTH CONTROL AND THE MINISTRY OF HEALTH.

AT a meeting held on behalf of Walworth Women's Welfare Centre at 43, Upper Grosvenor-street, London, on Dec. 13th, Lord Buckmaster presiding, it was moved by Dr. Elizabeth Sloan Chesser, seconded by Dr. Binnie Dunlop, and resolved, nem. con., that "This meeting represent to the Ministry of Health that it is desirable that no official opposition should be raised to the giving of birth control advice at any welfare centre, the medical officers of which are willing to give such advice."

We understand that the present attitude of the Ministry of Health in regard to birth control is :—

1. That the maternity and infant welfare centre should deal only with the expectant or nursing mother (and infant) and not with the married or unmarried woman contemplating the application of contraceptive methods.

2. That it is not the function of an ante-natal centre to give advice in regard to birth control, and that exceptional cases in which the avoidance of pregnancy seems desirable on medical grounds should be referred for particular advice to a private practitioner or hospital.

A MODIFICATION OF THE RINGLEB CYSTOSCOPE.

THE component parts of this modified cystoscope are : (*a*) The sheath carrying the lamp, and, in the catheterising model, catheter channels with an Albarran lever ; (*b*) the telescope ; (*c*) the obturator ; (*d*) the ball-valved spigot. The examining and catheterising sheaths are similar to those of the Ringleb model, with the important difference that the valve chamber and clapet valve are dispensed with, a simple metal collar with a compression flange taking the place of the former, and the clapet valve being replaced by the ball-valved spigot to be described later.

The advantages claimed for this modification are : 1. A complicated mechanism is replaced by a simple one, which is much less likely to give trouble. 2. The sheath is shortened, with the result that the telescope is correspondingly shorter, thus allowing (for the lens system used in this model) of better definition and brighter illumination. 3. Sterilisation of the instrument is easier, for the valve chamber and clapet valve are apt to collect mucus, blood-clot, &c., in the wiring of the spring and the interstices of the chamber, and to achieve efficient sterilisation of these parts by boiling entails very careful heating of the sheath for fear of damage to the wiring, whereas the ball-valved spigot is readily taken apart and boiled. 4. The cost of production is appreciably diminished. 5. Friction of the clapet-valve against the distal end of the telescope, a potent source of wear and tear, is obviated.

The telescope is provided with the upright and right-sided genito-urinary lens system, a detailed description of which may be found in "The Theory of Optical Instruments," by Elmsley and Swaine. The obturator is a plain, solid, metal rod of the same diameter as the telescope, with a serrated knob at the proximal end to facilitate handling. It fills the space usually occupied by the telescope and is introduced with the sheath into the bladder. The reasons for the addition of an obturator are two-fold. In the first place, it obviates all unnecessary manipulation of the delicate optical component, the latter being introduced only after all the preliminaries have been completed and the bladder is ready for examination ; and secondly, the addition of a solid metal rod to the thin sheath gives the latter more weight, a factor facilitating gentle and painless introduction after the manner of a sound.

The ball-valved spigot is composed of two parts screwed together, the distal end being cylindrical and fitting into the proximal opening in the sheath, and the proximal end being olive-shaped externally to take an irrigator or syringe nozzle, as the case may be. A weak, non-corrodible spring presses a metal ball-bearing of appropriate size against the anterior socket. This ball-valve allows the inflow of fluid into the bladder under weak pressure, but effectively prevents any back flow.

The modification described is of especial value in the child's cystoscope.

The instrument is made by the Genito-Urinary Manufacturing Company, of 64, Great Portland-street, London, and is illustrated in their current catalogue.

JOHN ALBAN ANDREWS, *M.C.*, F.R.C.S. Eng.

EXPOSURE TABLE FOR COOLIDGE X RAY TUBES.

A CONVENIENT exposure table in card form for the use of radiologists and others has been issued by Messrs. Watson and Sons (Electro-medical) Ltd. (43, Parker-street, Kingsway, London, W.C. 2). On one side of the card exposures are given for double-coated films, and on the other for X ray plates. Use of this card will help to standardise technique so that the results of separate observers may be made comparable. The exposures are based on a subject of average weight ; any considerable variation will necessitate a slight increase or decrease of the exposures given. The cards, which are very highly glazed, will be replaced when damaged or worn free of charge by the makers.

A SCIENTIFIC INVESTIGATION INTO VEGETARIANISM.[1]

THIS book is written in a fine flowing typically French style, and, apart from technical errors, such as the use of the term "hydrates of carbon" for "carbohydrates," is well translated. The book may truly be described as full of meat, but it is meat rather overdone. With many of the author's arguments we feel bound to agree, and these are calculated to do good. But certain other arguments are less convincing—for example, "Every objection disappears before these three laws which sum up the most important teachings of general physiology : (1) a food is a substance suited for transmitting matter and cosmic energy to animal organisms, which are incapable of profiting by their contact with the common environment to gather energy therefrom ; (2) vegetables alone, being supplied with chlorophyll, are capable of creating foods and food energy, &c. . . . . they alone can renew the stock of matter and energy on which the animals draw ; (3) in a word, the true food, in its pure source, is inevitably vegetable."

Surely, the evils of meat eating (or "necrophagy," as the author calls it) are rather quantitative than qualitative. There is excellent chemical evidence that meat supplies the necessary amino-acids far more readily than do plant proteins. Prof. Lefèvre himself is no mean athlete, as is clear from his description of his mountaineering exploits. He appears to be one of those who can utilise plant proteins profitably, and if he is better on a "vegetalian" diet, he should certainly stick to it.

X. Y. Z., whose disgust we share, has omitted to enclose his card.

St. Paul's Hospital.—Dr. Leonard Myer informs us that the attendances at St. Paul's Hospital for Skin and Genito-Urinary Diseases are 60,000 a year for venereal diseases. The figure 20,000 mentioned last week (p. 1353) applied to the last year at the old hospital, with its limited accommodation.

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[1] By Prof. Jules Lefèvre, Chevalier de la Légion d'Honneur, Lauréat de l'Institut et de la Société de Biologie, Professeur au Lycée Pasteur. (Translation by Fred. Rothwell.) London : John Bale, Sons and Danielsson, Ltd. 1923. Pp. 189. 7*s.* 6*d.*

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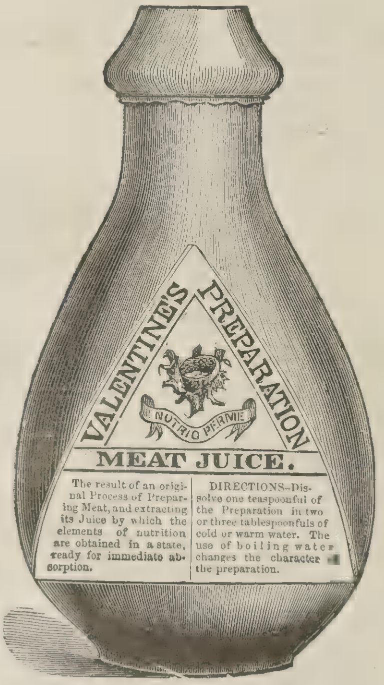
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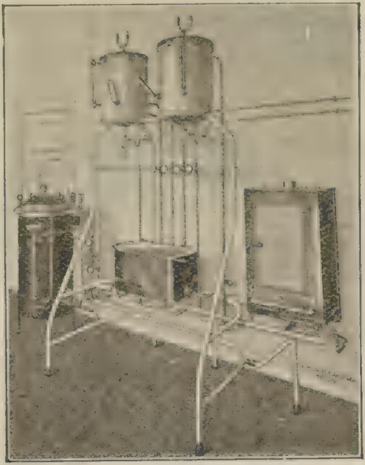

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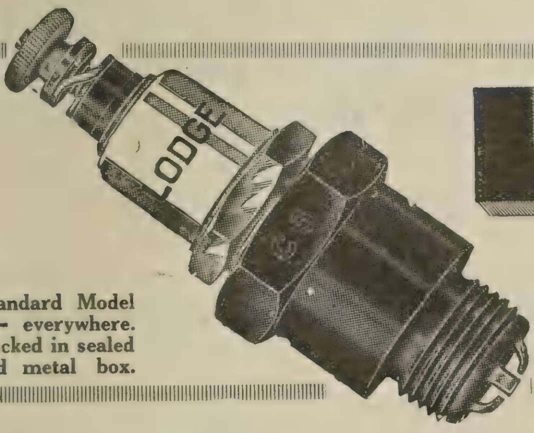

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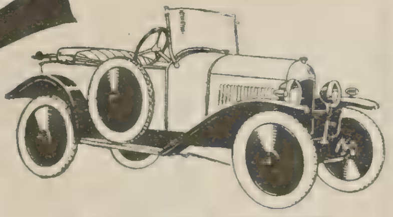

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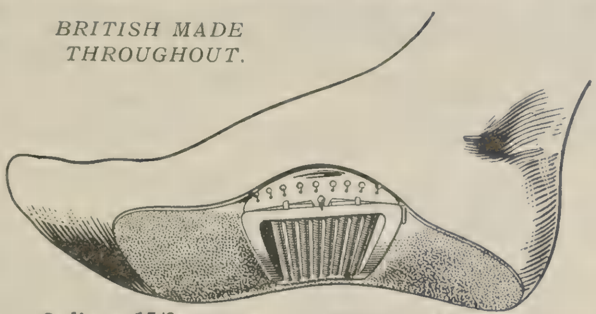

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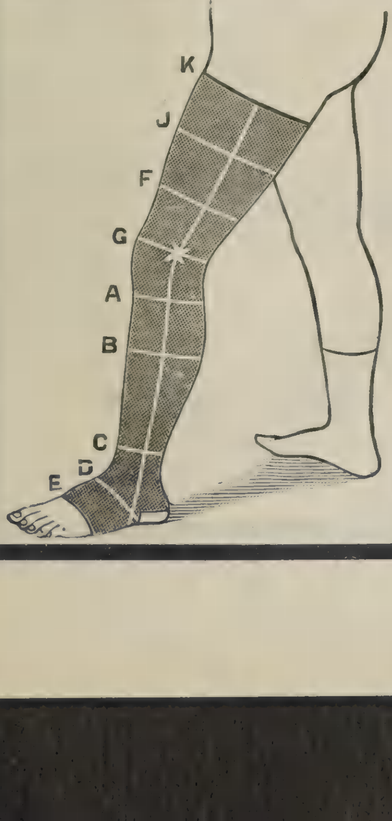

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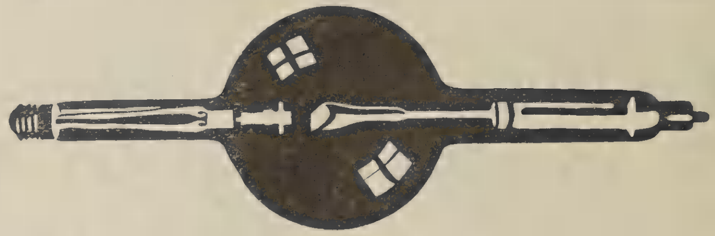

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Listerine is strictly antizymotic, it inhibits alike the acid fermentation of carbohydrates and the alkaline putrefactive processes of mixtures of meat and saliva, retained as debris about the teeth; hence, Listerine is antagonistic to the activating enzymes of fermentation so often the cause of Halitosis.

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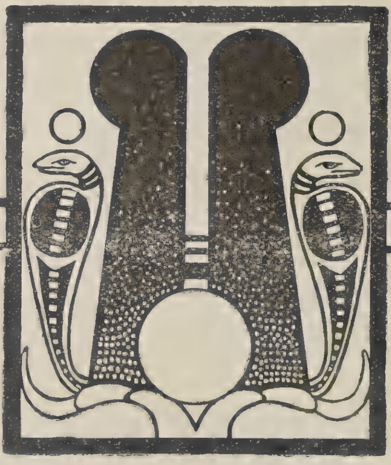
Analysis.

Protein	14.2%
Fat	8.01%
Sol. Carbohydrates—	
Reducing Sugars	60.1%
Dextrin	7.8%
	67.9%
Insol. Carbohydrates	nil.
Ash	3.76%
Organic Phosphorus calculated as P_2O_5	1.18%
Diastasic Power	25° L.



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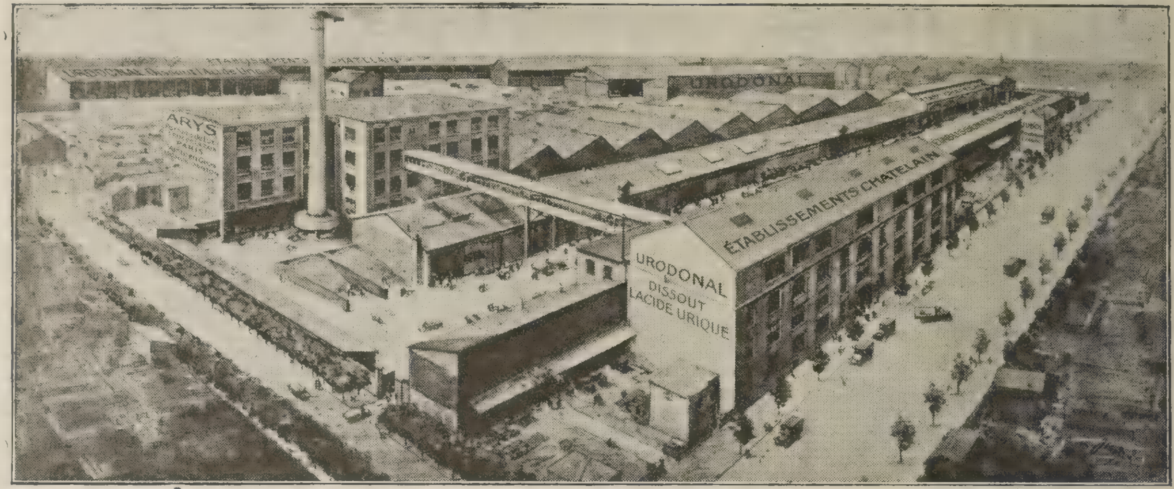

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The elimination of the superfluous fat enables COCOATINA to be taken by persons who cannot tolerate ordinary Cocoa, whilst its neutrality and extreme fineness render COCOATINA perfectly miscible with water or milk.

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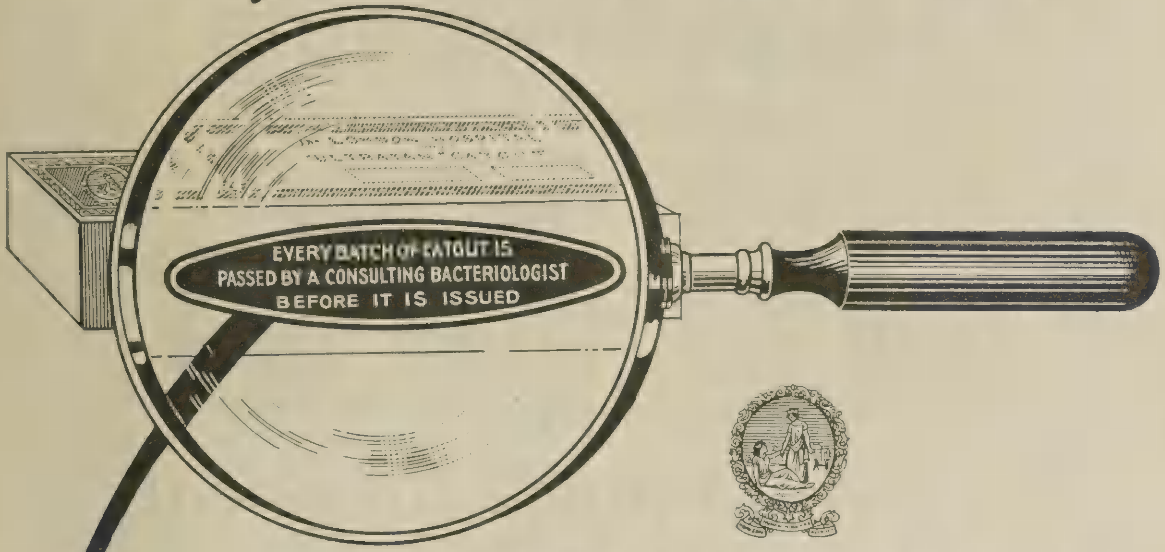
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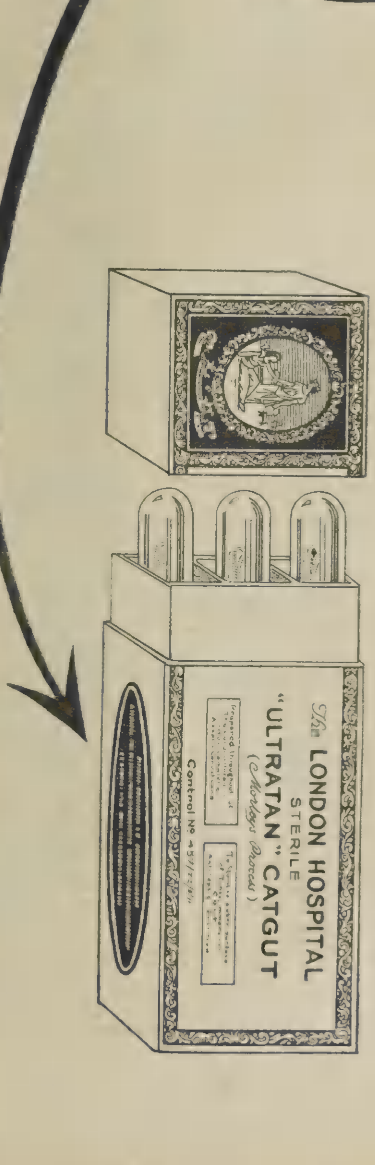

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(Plain or sugar-coated)

In bottles of 25 and 100, at **10***d. and* **2/6** *per bottle*

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Prepared from Acetylsalicylic Acid of exceptional purity, having the correct melting-point.

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'Empirin,' (Acetylsalicylic Acid)	gr. 3½	[0·227 gm.]
Phenacetini,	gr. 2½	[0·162 gm.]
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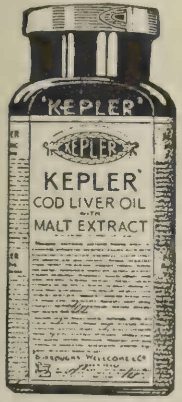
COD LIVER OIL WITH MALT EXTRACT



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PORTRAITS OF HITTITE EMPIRE BUILDERS CARVED BY THEIR CONTEMPORARIES OF THE SAME RACE.—The ethnic affinities of the Hittites remain as yet unknown. Their personal appearance, as we see it on their own and on Egyptian monuments, is unlike that of any other people. Their facial type is neither Semitic nor Aryan, and while some authorities see in it, in some cases, certain Mongolian features, and, in others, indications of a proto-Greek type, both these suggestions are warmly contested. Individuals resembling the Hittites are common in Eastern Anatolia among the Armenians of the present day, and the name "Armenoid" has been given to the type, which seems to represent a well-defined ethnic group. Its seems likely that the Armenians may be the modern representatives of an old stock, and that the survival of the type may be due to life through long ages in remote mountain villages with little intermixture with other races. The Hittites are noticeable from their extreme brachycephaly and their high and narrow nose in a line with their retreating forehead. They bear a certain resemblance to the Jews. We have, as yet, no ancient Hittite skulls. The pure Northern Hittites of the accompanying illustration wear no hair on their faces; they generally have a pig-tail, and are short, thick-set and evidently very hardy. To some investigators the Hyksos, who descended upon Egypt towards the end of the 18th Century B.C., were the Hittites, while, to others, they were Syrians, who, pressed by the Hittite "push," were driven to the Nile valley. But all conclusions as to the origin, race and language of the Hittites are at present provisional.

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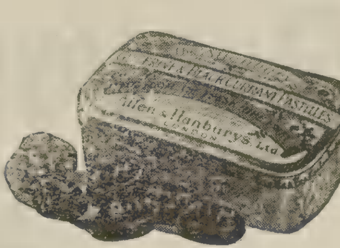

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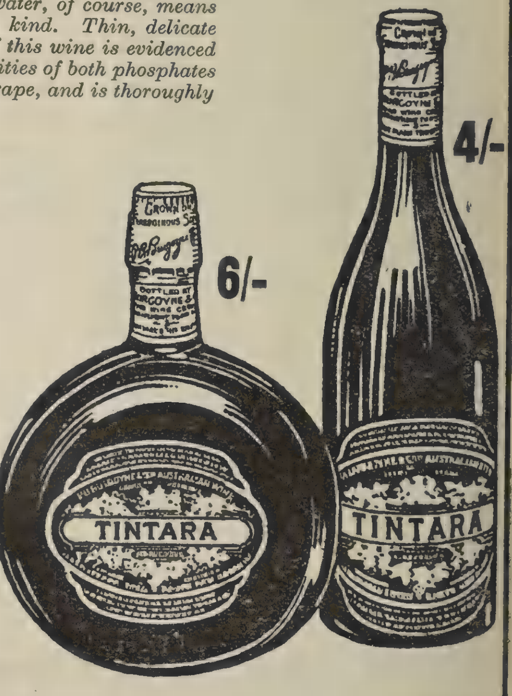

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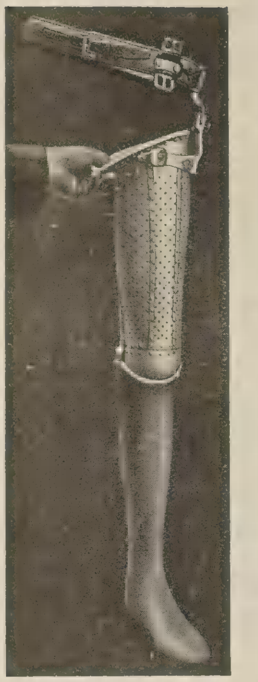

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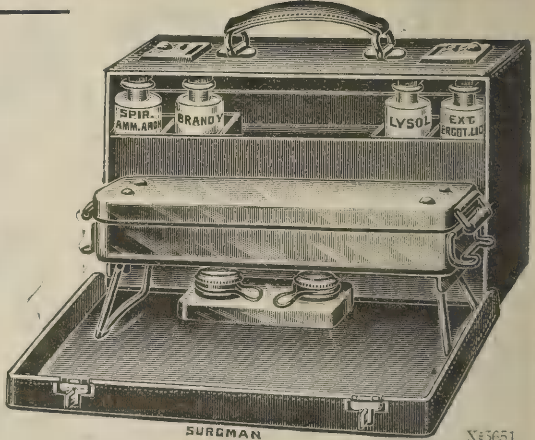

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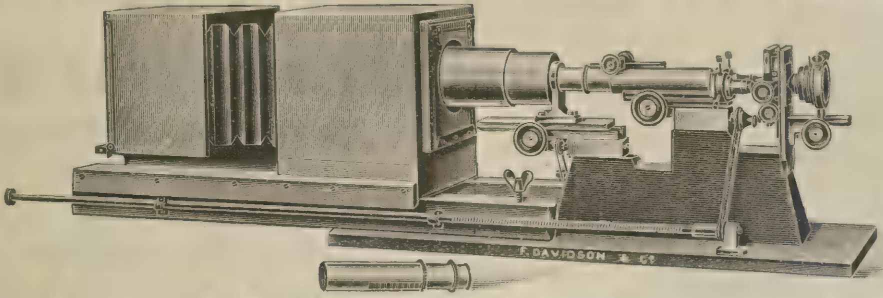

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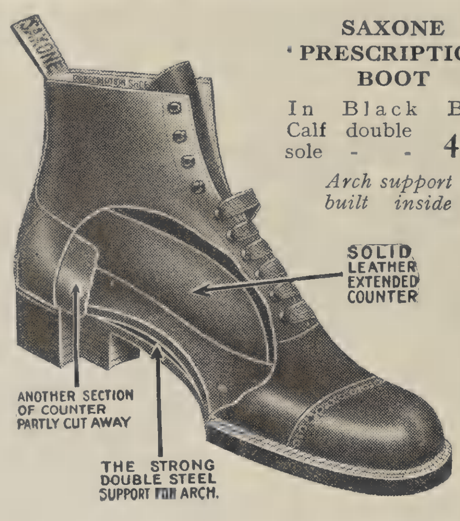
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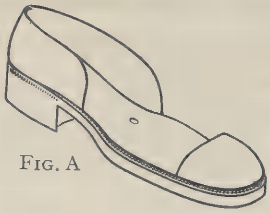

FIG. A

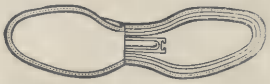

FIG. B

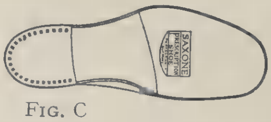

FIG. C

Illustrated above is the boot cut open to show the steel shank buried between sole and insole and the counter which is wrapped round the heel and extended along the side of boot.

FIG. A gives a full view of the counter which embraces the foot snugly from the side.

FIG. B shows the buried shank which is sufficiently rigid to support the arch and resilient enough to allow the necessary spring.

FIG. C.—The sole shape of the boot. Note the straight insides.

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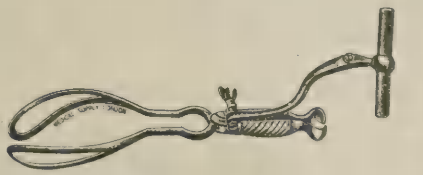
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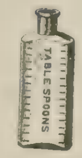
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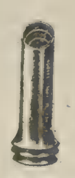
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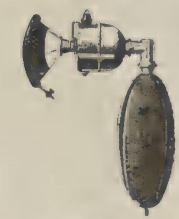
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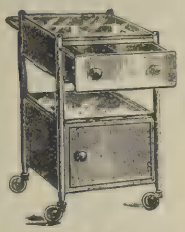
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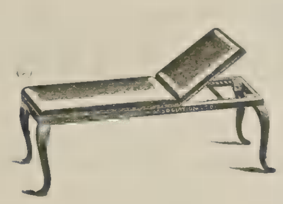
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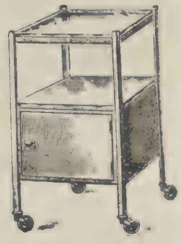
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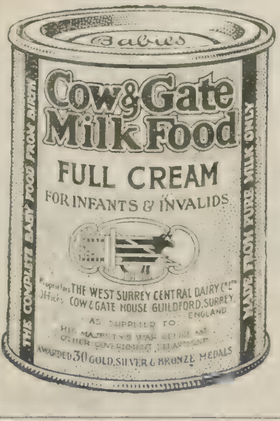

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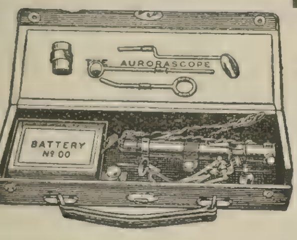

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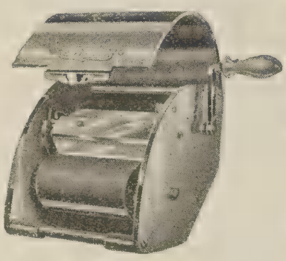

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Situated mid-way between Manchester and Liverpool. Two miles from Newton-le-Willows Station on the L. & N. W. Rly., and close to Ashton-in-Makerfield Station on the G.C. Rly. in direct communication with Manchester.

CONSULTING ROOMS (Dr. Street), 47, Rodney Street, Liverpool, from 2 to 4 P.M., or by appointment. Telephone: 2458 Royal Liverpool. Manchester Dr. Mould), Winter's Buildings, St. Ann Street, on Tuesdays and Thursdays from 12 to 1.30 P.M., or by appointment.

VISITING AND CONSULTING PHYSICIANS—Sir JAMES BARR, LL.D., M.D., F.R.C.P., 72, Rodney Street, Liverpool; G. E. MOULD, Physician for Mental Diseases to the Sheffield Royal Hospital, The Grange, Rotherham.

For further particulars and forms of admission apply Resident Medical Proprietor, Haydock Lodge, Newton-le-Willows, Lancs.

Telegraphic Address: "STREET, Ashton-in-Makerfield." Telephone: 11 Ashton-in-Makerfield.

NORTHUMBERLAND HOUSE,

GREEN LANES, FINSBURY PARK, N.

Telegrams: "SUBSIDIARY, LONDON." ***(Established 1814.)*** Telephone: No. 888, North.

A PRIVATE HOME for the treatment of Ladies and Gentlemen suffering from Nervous and Mental Affections. Four miles from Charing Cross; easy of access from all parts.

Six acres of ground, highly situated, facing Finsbury Park.

Voluntary Boarders received without certificate. Seaside Branch at Worthing.

For particulars, apply to the RESIDENT PHYSICIAN.

YARROW CONVALESCENT HOME, BROADSTAIRS.

FOR CHILDREN OF WELL-EDUCATED PEOPLE OF VERY LIMITED MEANS.

Charge, 10s. per week for each Child.

This fee is subject to addition or deduction according to Parents' means.

100 Beds. Boys, ages 4 to 12. Girls, ages 4 to 14.

The usual stay is 4 weeks, but some wards are reserved for serious [illegible] requiring special treatment, and for these a lengthened stay may, under some circumstances, be granted, and the age limit raised to 14 for Boys and 16 for Girls.

The Home faces the sea, and is open all the year, being as well adapted for winter as for summer residence.

Particulars can be obtained from the SECRETARY, 116, VICTORIA ST., WESTMINSTER, LONDON, S.W.1.

CROOKSBURY SANATORIUM

Specially built for the treatment of **Pulmonary Tuberculosis**, recently redecorated and largely refurnished.

Ideal situation on the Crooksbury Ridges, amidst pine trees and heather, opposite Farnham Golf Links, in the most beautiful part of Surrey. Electric Lighting throughout.

MEDICAL DIRECTOR: **F. R. WALTERS**, M.D., M.R.C.P.Lond., F.R.C.S. Assisted by a competent Staff.

For particulars apply to the Secretary, Crooksbury Sanatorium, Farnham, Surrey.

MENDIP HILLS SANATORIUM

FOR THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS

Old-established, beautifully situated, 300 acres of Sanatorium grounds. Pinewoods and sheltered avenues. Altitude 850 feet. Extensive views. Separate chalets, with verandahs; hot-water radiators, and electric light in every room and chalet. Graduated Exercises. Inhalation. Electric treatment, &c. Individual attention.

Resident Physician—Dr. C. MUTHU.

For particulars apply SECRETARY, Hillgrove. Wells, Somerset.

THE DEESIDE SANATORIA IN SCOTLAND

FOR THE OPEN-AIR TREATMENT OF

PULMONARY TUBERCULOSIS and ALLIED DISEASES

At BANCHORY and MURTLE.

Medical Director - - *DAVID LAWSON, M.A., M.D., F.R.S.E.*

These Sanatoria are situated amidst **Ideal Surroundings in Middle Deeside**, the reputation of whose **Climate** in the treatment of Lung Diseases is well established.

Both Institutions are well equipped with **Research Laboratory, Throat Room, Dental facilities**, and powerful **X-Ray Plant. Full Day and Night Nursing Staffs** are employed.

Special Treatment by artificial **Pneumothorax** (with X-ray Control), the various **Tuberculins**, and Autogenous **Vaccines**, &c., is available without extra charge.

NORDRACH-ON-DEE

At BANCHORY, near BALMORAL.

Physician - - - - DR. IAN STRUTHERS STEWART.
Assistant Physician - DR. J. C. LORRAINE.

For particulars apply Secretary.

TOR-NA-DEE SANATORIUM

At MURTLE, ABERDEENSHIRE.

Senior Physician - - DR. J. M. JOHNSTON.
Assistant Physicians - DR. JAMES LAWSON & DR. A. C. FOWLER.

Inclusive terms 7 guineas a week.

For further particulars apply Secretary.

The Scottish Branch of the British Red Cross Society is prepared to contribute towards payment of the fees of ex-Officers and Nurses recommended by the Society, and such Officers and Nurses obtain priority of admission to TOR-NA-DEE.

The work hitherto carried on at

DUFF HOUSE, BANFF, SCOTLAND,

has been transferred to

RUTHIN CASTLE,
NORTH WALES,

which is now opened as a Private Hospital for sufferers from any non-infectious INTERNAL DISEASES who need investigation or treatment.

Special arrangements are made for carrying out the preliminary tests needed for the proper administration of INSULIN in diabetes.

Application should be made to the Secretary.

MALVERN ELECTRO-THERAPEUTIC INSTITUTE.

Complete Installation for **PLOMBIERES TREATMENT** for Mucous Colitis.

Dowsing Radiant Heat, Schott Nauheim Baths, **MASSAGE, BERGONIE, DIATHERMY, IONIC MEDICATION, HIGH FREQUENCY**, etc.

Telephone, 89.] [*Established 1903.*

For particulars apply—**Proprietress, E. M. ROWLANDS, Certificated Nurse**, C.S.M.M.G.M.E., Branksome, Worcester Road, Malvern.

DROITWICH BRINE BATHS WARNING.

The Public are warned that the full benefits of the treatment for Rheumatism and kindred complaints **CAN ONLY BE OBTAINED IN THE NATURAL BRINE BATHS AT DROITWICH, FOR WHICH THERE IS NO SUBSTITUTE.** LOVELY HOLIDAY DISTRICT. GOOD HOTELS, &c. Illustrated Booklet Post-free from Baths Manager, J. H. HOLLYER, 48, Spa Enquiry Offices, Droitwich (Worcs.). **SPECIAL FACILITIES TO MEDICAL MEN.**

INEBRIETY. [Telephone: 16 Rickmansworth.

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

AROSA

SWISS ALPINE HEALTH RESORT. *ALTITUDE 6,000 FEET.*

Open all the year round.

All Forms of Tuberculosis, Bronchitis, Asthma, Neurasthenia, etc.

50 Sanatoriums, Hotels and Boarding Houses admitting Patients, Children's Sanatoriums, and Residential Schools.

ILLUSTRATED PROSPECTUS GRATIS FROM THE KURDIREKTION

MONTANA

above SIERRE, SWITZERLAND

5000 feet high.

Dr. STEPHANI'S SANATORIUM

Establishment for treatment of all forms of tuberculosis. Inclusive terms for south rooms from 17 frs. daily.

PALACE SANATORIUM,

MONTANA-SUR-SIERRE,

SWITZERLAND.

TUBERCULOSIS CURE STATION

(All the Year). THE FINEST IN EUROPE.

5000 ft. high. Accommodation for 100 patients.

Principal Resident Medical Officer:
BERNARD HUDSON, M.D.Cantab., M.R.C.P.,
Late Physician to the Queen Alexandra Sanatorium,
Davos Platz.

FULL PARTICULARS FROM THE SECRETARY, 5, ENDSLEIGH GARDENS, LONDON, N.W.1.

SMEDLEY'S HYDRO.

MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.).

Prospectus and full information on application to the Managing Director.

PEEBLES HYDRO.

Beautifully situated 600 feet above sea level. Facing South, completely sheltered from North and East.
22 miles from Edinburgh.
All modern Baths, Douches, Massage and Electrical Treatments.
Resident Physician: K. R. COLLIS HALLOWES, B.A., M.B., B.Ch., B.A.O. IDEAL HEALTH RESORT.
Electric Light, Central Heating, Electric Lift, Three Billiard Tables, Ball Room, Winter Garden, Swimming Bath, Hard and Grass Tennis Courts, Croquet Lawn, Golf Course.
Prospectus from Manager.

NORTHAMPTONSHIRE SANATORIUM

CREATON, near Northampton.

Under the Management of the Committee of the Northampton Branch of the National Association for the Prevention of Tuberculosis.

Exclusively for Early Cases of PULMONARY TUBERCULOSIS, either sex. Private Patients are received at a charge from 2½ guineas a week.
Telephone: 9 Creaton. Apply to the MEDICAL SUPERINTENDENT.

VERNET-LES-BAINS

THE PARADISE OF THE PYRENEES

SUMMER AND WINTER SEASONS
2000 Feet High.

Excellent climate—sheltered from winds—free from humidity. 12 Natural Radio-active Sulphur Springs. Winter treatment of rheumatism, gout, sciatica, nervous affections, bronchitis, convalescence. Sun, air, and rest cures.

Special Nebulisation, Radio-aero bath, and Mechanotherapic treatments.

Resident English-speaking physician, Dr. GESUA from Paris.

Large Thermal Establishments communicating with first-class Hotels; newly furnished Villas, likewise fitted with central heating, inexpensive. Good Club with English Billiards, Ladies' Bridge Rooms, Orchestra, Tennis, Cinema, &c.

Write to General Manager,
Vernet-les-Bains, Pyrenees Orientales.

BAY MOUNT, PAIGNTON

ALCOHOLISM, DRUG HABIT, NEURASTHENIA.

Ladies and Gentlemen received.

Small, select home, standing in 3½ acres of secluded gardens overlooking Torbay, near Torquay. Billiards, golf, tennis, &c.

Every case treated with a view to rapid and permanent cure. Comfortable homelike surroundings.

Particulars from SECRETARY or STANFORD PARK, M.B., Res. Med. Supt.
Telephone: Paignton 210.

YORK HOUSE, HARROGATE.

DIETETIC NURSING HOME,

with special facilities for the accurate control of diet essential in Diabetes, particularly when **INSULIN** is necessary.
Apply, Miss E. M. SMYTH, Matron, 23, York Place, Harrogate. Tel. 1701.

THE COPPICE, NOTTINGHAM.

HOSPITAL FOR MENTAL DISEASES.

President: The Right Hon. the EARL MANVERS.

This Institution is exclusively for the reception of a limited number of PRIVATE PATIENTS of both sexes, of the UPPER and MIDDLE CLASSES, at moderate rates of payment. It is beautifully situated in its own grounds, on an eminence a short distance from Nottingham, and commands an extensive view of the surrounding country; and from its singularly healthy position and comfortable arrangements affords every facility for the relief and cure of those mentally afflicted. For terms, &c., apply to the Medical Superintendent.

STRETTON HOUSE,

Church-Stretton, Shropshire.

A Private HOME for the treatment of Gentlemen suffering from Mental Diseases. Bracing hill country. See "Medical Directory," p. 2119. Apply to Medical Supt. Tel.: 10 P.O. Church-Stretton.

CHEADLE ROYAL,

CHEADLE, CHESHIRE.

This Registered Hospital for **MENTAL DISEASES** with its seaside branch Glan-y-Don, Colwyn Bay, is for the treatment of PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES. Voluntary Boarders received.

For terms, &c., apply to the Superintendent, J. A. C. ROY, M.B., or he may be seen at 72, Bridge-street, Manchester, on Tuesdays and Fridays from 2 to 3. Telephone: No. 163 GATLEY.

BARNWOOD HOUSE

HOSPITAL FOR MENTAL DISEASES,

BARNWOOD, near GLOUCESTER.

Telephone: No. 7 Barnwood.

Exclusively for PRIVATE PATIENTS of the UPPER and MIDDLE CLASSES.

This institution is devoted to the Care and Treatment of persons of both sexes at moderate rates of payment.

Voluntary boarders not under certificates are admitted.

Under special circumstances the rates of payment may be reduced by the Committee.

The MANOR HOUSE for Ladies only, which is entirely separate from the Hospital and standing in its own grounds, is utilised exclusively for voluntary patients.

For further information apply to ARTHUR TOWNSEND, M.D., the Medical Superintendent.

THE WARNEFORD, OXFORD,

HOSPITAL FOR MENTAL DISORDERS.

President: The Right Hon. the EARL OF JERSEY.

This Registered Hospital, for the Treatment and Care, at moderate charges, of Mental Patients belonging to the educated classes, stands in a healthy and pleasant situation on Headington Hill, near Oxford. Voluntary boarders are also received for treatment.—For further particulars apply to the Medical Superintendent.

Telegraphic Address:	Telephone:
"Relief, Old Catton."	"290 Norwich."

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.— **A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders are also received without certificates.**

For full particulars apply to the Misses McLINTOCK, or to Dr. S. BARTON, 34, Surrey-st., Norwich, Visiting Physician.

Bucks Mental Hospital, Stone, near Aylesbury.
The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at a minimum weekly Charge of 1½ guineas. Apply to the Medical Superintendent.

Neurasthenic, Rest Cure, and Chronic CASES are received from 5 guineas weekly in Doctor's Country Home. Golf, tennis, &c. Own poultry, fruit and vegetables. Tel. 194 Chertsey.
Apply, Dr. Alexander, Harcourts, Chertsey.

St. Michael's, Broadstairs.—A charming Country HOUSE, beautiful garden, South aspect close to sea, where Invalids are received for Rest, Care, or Convalescence. Accommodation for Spinal Cases. Excellent cooking. Moderate charges.—Apply, Miss Gertrude Fletcher, R.R.C.

Grove House, All Stretton, Church STRETTON, SHROPSHIRE.
A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.
Climate healthy and bracing.
Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Doctor can receive Patient or Guest in his charming Residence. Good staff of Nurses and Servants.—Dr. Meyrick, 48, Ennismore-gardens, S.W. 7. Telephone: 2130 Kensington.

Guest House for Children, 10, Surrey-road, Cliftonville, Margate.—DELICATE CHILDREN received and trained. Governess and Trained Nurse. Highest Doctor's references.—MRS. BEATRICE BROWN.

General Nursing Council for England
AND WALES.

The General Nursing Council for England and Wales will shortly be appointing EXAMINERS for the Examinations under the Nurses' Registration Act. Applications for Examinerships will be considered from Medical Practitioners and Nurses who have been engaged in teaching at the Training Schools approved by the Council. For particulars apply to the Registrar, General Nursing Council for England and Wales, 12, York Gate, Regent's Park, N.W. 1.

Royal Army Medical Corps.

EXAMINATION FOR COMMISSIONS.

An examination for not less than 40 Commissions in the Royal Army Medical Corps will be held on 30th January, 1924.

Applications to compete should be made to the Secretary, the War Office, not later than 20th January, 1924. The presence of candidates will be required in London from 28th January, 1924.

Intending candidates can obtain a full statement of the duties and emoluments of the service on written application to the Secretary, the War Office, Whitehall, London, S.W. 1.

Seamen's Hospital Society, Greenwich,

S.E. 10.—The Committee invite candidates for the appointment of HOUSE PHYSICIAN at the HOSPITAL FOR TROPICAL DISEASES (to which the London School of Tropical Medicine is attached), Endsleigh-gardens, N.W. 1. Candidates must be Male, doubly qualified and registered. Salary at the rate of £150 per annum and a proportion of fees, with board, residence, and washing. The appointment will be for six months. Applications, stating age, together with copies of not more than three recent testimonials, to be sent in on or before the first post on Monday, 7th January, to the undersigned, from whom further particulars can be obtained.

By order.
P. J. Michelli, Secretary.

Greenwich, 19th December, 1923.

The Hospital for Sick Children,
Great Ormond-street, London, W.C. 1.

A BIOCHEMIST is required on the 1st February, 1924.

Gentlemen are invited to send in their applications addressed to the Secretary accompanied by copies of not more than three testimonials given specially for the purpose, before 12 o'clock on Monday, the 14th January, 1924.

The appointment is made for one year, and is non-resident.

Commencing salary £600 per annum and allowance for substitute for annual holiday £18 18s.

Candidates must be registered Medical Men and be prepared to take up the duties on the 1st February, 1924.

All candidates must appear before the Joint Committee at their meeting on Wednesday, 16th January, 1924, at 5 P.M.

Forms of application, copy of the rules for, and details of the appointment will be supplied on application to the Secretary.

By order of the Board of Management.
December, 1923. James McKay, Secretary.

The Hospital for Sick Children,
Great Ormond-street, London, W.C. 1.

A RESIDENT MEDICAL SUPERINTENDENT is required on the 2nd February, 1924.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, 14th January, 1924, accompanied by copies of not more than three testimonials given specially for the purpose.

The appointment is made for one year, but may be held, subject to re-election, for a period of three years.

Salary £300 per annum, with board-residence in the Hospital, and £5 allowance for laundry.

Candidates must be registered Medical Practitioners, and must have held a responsible Hospital appointment.

All candidates must appear before the Joint Committee at their meeting on Wednesday, 16th January, 1924, at 5 P.M. precisely.

Forms of application and copies of the rules may be obtained from the Secretary, at the Hospital.

By order of the Board of Management.
December, 1923. James McKay, Secretary.

St. Mary's Hospital, London, W. 2.

OPEN APPOINTMENT.

Applications are invited for the post of MEDICAL SUPERINTENDENT.

The Medical Superintendent is the Senior Resident Medical Officer of the Hospital. His duties are administrative and professional, and include the charge of certain beds.

Candidates must be qualified both in Medicine and Surgery and have held the post of Resident Medical Officer to some General Hospital.

Tenure of Post.—The appointment is for one year, the holder being eligible for re-election for a second and third year.

Inclusive Salary.—£400 per annum, with board and residence provided.

The successful candidate will be expected to commence duty as soon as possible. Applications to reach the undersigned not later than Tuesday, 15th January, 1924.

W. Parkes, Secretary.

City of London and East London

DISPENSARY, 40, Wilson-street, Finsbury-square, E.C. 2.—ASSISTANT PHARMACIST (Male) with good knowledge of Hospital Dispensary and the preparation of Ointments, Concentrations, Tablets, &c., required. Commencing salary £200. No Saturday or Sunday duty. Apply, giving age, experience, and testimonials in first letter to

Douglas M. Bluett, Secretary.

Westminster Hospital (opposite

Westminster Abbey).—Vacancies have been declared this day in the offices of SURGEON and OPHTHALMIC SURGEON of this Hospital. Gentlemen desirous of becoming candidates must be Fellows of the Royal College of Surgeons of London. Each candidate will be required to transmit a certificate of his age and to attend the House Committee with his testimonials on Tuesday, January 8th, 1924, at 4 P.M.

By order of the House Committee.
Charles M. Power, Secretary.

18th December, 1923.

Westminster Hospital (opposite

Westminster Abbey).—Applications are invited for the office of ASSISTANT OPHTHALMIC SURGEON to this Hospital. Gentlemen desirous of becoming candidates must be Fellows of the Royal College of Surgeons of England not practising Pharmacy or Midwifery. Each candidate is required to transmit a certificate of his age and thirty copies of his application and testimonials to the undersigned, and to attend the House Committee on Tuesday, the 8th January, 1924, at 4 P.M.

By order of the House Committee.
Charles M. Power, Secretary.

Bradford Children's Hospital.—The

Board of Management invite applications for an HONORARY ASSISTANT SURGEON, duly qualified. Applications, with not more than three recent testimonials, to be sent to me by 12 o'clock noon on January 19th. Personal canvassing will disqualify. C. V. Woodcock, Secretary.

Bradford, December 19th, 1923.

The Sheffield Royal Hospital.—

Applications are invited for the post of CASUALTY OFFICER (Male), which falls vacant on February 1st, 1924. Salary £150, with board, washing, and residence in the Hospital. Candidates must be registered Medical Practitioners and unmarried. Previous Resident appointment experience necessary.

Applications, with copies of testimonials, should be sent before January 15th to Joe W. Robinson, Secretary.

The Board Room, 20th December, 1923.

Royal Victoria and West Hants
HOSPITAL, Bournemouth.
(Poole-road Branch. 55 Beds.)

Required to commence duty immediately, Male RESIDENT HOUSE SURGEON (registered). Salary £150 per annum, with board, lodging, and washing. The appointment is tenable for six months. Applications, with copies of not less than three testimonials, to be sent to the undersigned immediately.

December 17th, 1923. Gordon M. Saul, Secretary.

Wellhouse Hospital, Barnet.
(250 Beds.)

Wanted, ASSISTANT RESIDENT MEDICAL OFFICER to take up duties by the end of January. Salary £150, with rations, furnished quarters, laundry, and attendance. Must be fully qualified. Preference will be given to candidates who have held appointment of House Physician or House Surgeon in a public General Hospital. Applications, stating age, experience, and qualifications, with copies of three recent testimonials, to be addressed to Arthur Wilshire, Clerk to the Guardians, Barnet, Herts, not later than Wednesday, 9th January.

Notts County Mental Hospital,
Radcliffe-on-Trent.

The Visiting Committee invite applications for the position of ASSISTANT MEDICAL OFFICER (Male). Salary £400 per annum, rising £20 annually for five years, with board, residence, and laundry. The appointment is subject to the Asylums Officers' Superannuation Act, 1909.

Diploma in Psychological Medicine will be considered a recommendation.

Applications, stating age, qualifications, and previous experience, to be addressed to the Clerk of the Committee.

Royal Berkshire Hospital. (213 Beds.)

Wanted, on January 9th, a HOUSE PHYSICIAN. Salary £150 per annum, with board, residence, and laundry. He must be fully qualified and registered.

Wanted, on January 9th, a THIRD HOUSE SURGEON. Salary £150 per annum, with board, residence, and laundry. He must be fully qualified and registered.

The appointments are for six months.

Applications, accompanied by copies of recent testimonials, should be addressed to the undersigned, of whom any further information can be obtained. Herman Burney, Secretary.

Reading, 22nd December, 1923.

Nottingham Children's Hospital.— Applications are invited for the post of RESIDENT HOUSE SURGEON (Woman). Previous Hospital experience essential. The salary will be at the rate of £150 per annum, with apartments, board, and laundry. The appointment will be for six months, and the duties will commence as from 29th February, 1924.

Applications, together with testimonials, stating age, qualifications, and experience, to be sent to F. PRAGNELL, the Honorary Secretary, 1, King John's Chambers, Bridlesmith Gate, Nottingham, by the 17th January, 1924. Selected candidates will be required to attend at the Hospital for a personal interview on 29th January, when the appointment will be made.

County Council of the West Riding
OF YORKSHIRE.

MIDDLETON-IN-WHARFEDALE SANATORIUM,
near Ilkley.

The County Council of the West Riding of Yorkshire invite applications for the appointment of ASSISTANT RESIDENT MEDICAL OFFICER at the Middleton-in-Wharfedale Sanatorium, near Ilkley.

The salary will be £350 per annum, with board and residence.

Further particulars and form of application may be had from the undersigned, by whom all applications, together with copies of not more than three recent testimonials, must be received not later than the 7th January, 1924.

FRANCIS ALVEY DARWIN, Clerk of the County Council.
County Hall, Wakefield, 15th December, 1923.

Royal Southern Hospital, Liverpool.

Applications are invited to fill two vacancies at the above Hospital—namely :—

1. HONORARY MEDICAL OFFICER in charge of the Electro-therapeutic and Massage Department.
2. HONORARY MEDICAL OFFICER in charge of the Electro-cardiographic Department.

Applicants must have had special experience in the work of the respective departments.

Applications and testimonials to be forwarded to the Chairman of the Election Committee on or before Friday, 4th January, next.

Extract Rule 17 :—Any candidate shall be disqualified who advertises in the public papers or personally canvasses the members of the Election Committee ; but candidates are to be at liberty to send to the members copies of their applications and accompanying documents as delivered to the Chairman of the Committee.

ALLEN NALDRETT, Superintendent and Secretary.

Warwick County and County Borough OF COVENTRY JOINT MENTAL HOSPITAL.—Appointment of MEDICAL SUPERINTENDENT.—Applications are invited for the appointment of Medical Superintendent at the above Mental Hospital. The salary offered is £1000 per annum, with emoluments valued for pension purposes at £300 per annum as follows : Furnished house, rates, fire, light, washing, vegetables from the garden, the privilege of purchasing provisions at contract prices, and a cash allowance of £50 per annum for upkeep of car. Forms of application with further particulars may be obtained from the undersigned.

Applications for the appointment, endorsed " Medical Superintendent," must be received by me not later than Saturday, the 12th January, 1924.

Canvassing, either directly or indirectly, will be a disqualification.

H. M. BLENKINSOP, Clerk of the Visiting Committee.
1, New-street, Warwick.

Applications are invited for the post of JUNIOR RESIDENT MEDICAL OFFICER (Male) at the DUMFRIES AND GALLOWAY ROYAL INFIRMARY. The Institution, which contains over 100 beds, is one of the premier provincial hospitals in Scotland, and offers exceptional opportunities of gaining experience in all branches of the profession. Period of engagement six months from 1st February, 1924. Salary £125 per annum.

Applications, with testimonials, to be forwarded to the Treasurer, Dumfries and Galloway Royal Infirmary, 84, Irish-street, Dumfries, by 10th January, 1924.

Union of South Africa.

UNIVERSITY OF THE WITWATERSRAND.

VACANCY FOR A SENIOR LECTURER IN ANATOMY.

SALARY.—£450 per annum, on scale £450–25–650, plus cost of living allowance, which at present amounts to £66 per annum on the commencing salary.

ENGAGEMENT.—In the first instance on probation for two years. Duties commence on 1st May, 1924.

TRANSPORT.—Grant of £40 and free first-class railway ticket from Cape Town to Johannesburg ; subject to a proportionate refund if resignation occurs within three years. Half salary is paid during the voyage to South Africa.

Applications, together with copies of testimonials as to qualifications, experience, and character, all in duplicate, must be lodged with the Secretary, Office of the High Commissioner for the Union of South Africa, Trafalgar-square, W.C., from whom forms of application and further particulars may be obtained, not later than 20th February, 1924.

Wanted, a duly qualified Medical OFFICER (British born) for the PARISH OF EDAY, Orkney, to commence duties on the 2nd March, 1924. For particulars of appointment apply to Clerk, Parish Council, Eday.

A. M.O. required for Private Asylum in London. Salary £300 per annum, with board, apartments, laundry, &c.—Address, 344, THE LANCET Office, 423, Strand, W.C. 2.

Wanted, Locum Tenens one year, or ASSISTANT intending Partnership General Practice near Singapore. Tropical Disease Diploma not essential. $600 per month, quarters, car, and allowance passage included. For further information apply, Secretary, St. Mary's Medical School, Paddington.

Gentleman gives Lessons on his two private Cars : also evenings and Sundays. Excellent testimonials. Terms very moderate.—Ring 4288 Mayfair. Capt. Nash, 16A, Allsop-place, Baker-street Station.

Locum Tenens Provided.

Apply to

Mr. W. S. ATKINS

(Late of Arnold & Sons, London),
43, Bedford-street, Strand, W.C. 2.

Telegraphic Address : " Positions, Westrand, London."
Telephone : Regent 229.

Retired (pensioned) Officer, formerly Pathologist (D.P.H., &c.), and now taking no other practice, desires appointment as PATHOLOGIST to non-teaching Hospital. Salary £250.—Address, No. 335, THE LANCET Office, 423, Strand, W.C. 2.

Young Lady seeks daily post as RECEPTIONIST-SECRETARY to Doctor or Dentist. Highest references.—Box 11, Scripps's Advertising Service, South Molton-street, W. 1.

Required at once, Practices and PARTNERSHIPS.—Mr. W. S. Atkins (late of Arnold & Sons, London) has a large number of Clients who are seeking Practices and Partnerships, and wish to settle down at once.—Send full particulars, in confidence, to Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, London, W.C. 2.

Wanted by M.D. (Oxford), Practice or PARTNERSHIP, in or near London, about £1000 per annum. Age 29, married. Or would purchase death vacancy.—Address, No. 262, THE LANCET Office, 423, Strand, W.C. 2.

Required in London or Suburbs, General PRACTICE with panel producing over £1000 per annum.—Send full details, in confidence, to Mr. W. S. Atkins, Medical Transfer Agency, 43, Bedford-street, Strand, W.C. 2.

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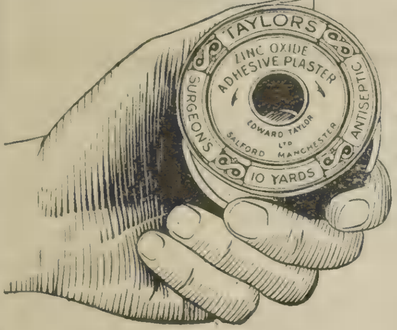

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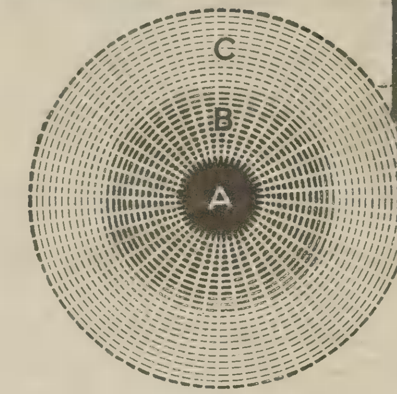

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